Eduqas GCSE Mathematics Foundation Tier

Probability and Statistics Revision Booklet



The questions included in this booklet have been taken from past examination papers used in previous Eduqas examinations.

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Probability

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Please note that any questions labelled as “Calculator” have been taken from an exam paper where the use of a calculator was allowed. This does not necessarily mean that a calculator is required to answer the question.

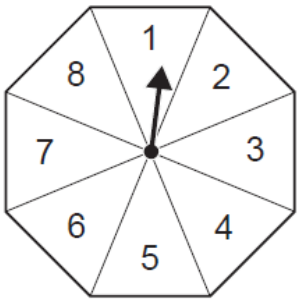
Probability Scales / Expressions: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
#2	3	
#3	4	
#4	4	
Total	13	

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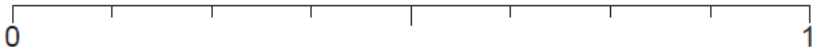
#1

(a)



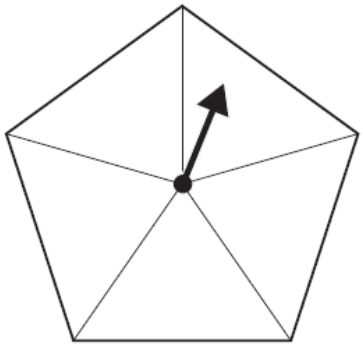
The diagram shows a fair spinner for a simple game.
Rhian needs to score 7 or more with a single spin to win the game.

On the probability scale below, mark with an arrow the probability that Rhian wins the game. [1]



(b) Tomas is playing a game with a different fair spinner.

Here is the shape of his spinner.



The arrow on the probability scale below shows the probability that Tomas scores less than 4 with one spin.



Write five numbers on Tomas' spinner so that the scale is correct. [1]

Question taken from Eduqas examination paper 530001, November 2019

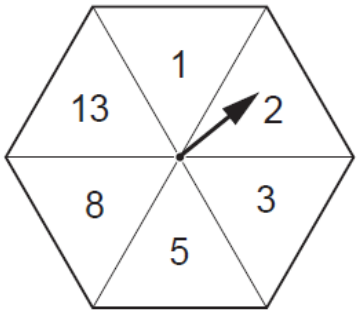
#2

(a) Circle **one** term from the box that matches the probability shown by arrow *A* on this probability scale. [1]

impossible	unlikely	an even chance	likely	certain



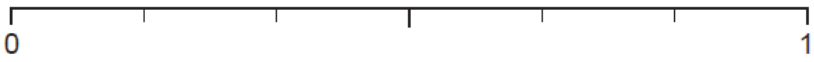
(b) The diagram shows a fair spinner.



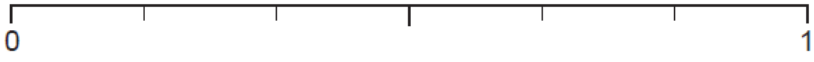
Carol spins the spinner once.

On the probability scale below, mark with an arrow the probability that Carol spins

(i) a number greater than 13, [1]



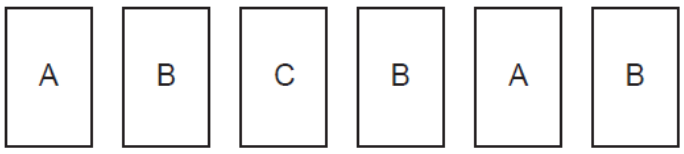
(ii) an even number. [1]



Question taken from Eduqas examination paper 530001, May 2022

#3

David has 6 cards.
Each card has a letter on it.

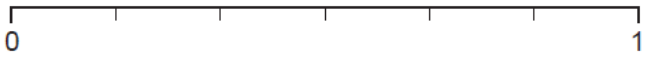


(a) Which letter is the mode? [1]

.....

(b) One of the cards is chosen at random.

(i) On the probability scale below, mark with an arrow (↓) the probability that the card chosen has a letter A on it. [1]



(ii) Write down the probability that the card chosen has a letter C on it. [1]

.....

(c) Write down the ratio of the number of cards with a letter A to the number of cards with a letter B. [1]

.....

A : B = ... : .....

Question taken from Eduqas examination paper 530001, May 2024

#4

(a) (i) Circle the best expression for the chance that it will snow in the UK in July. [1]

Impossible Unlikely Even chance Likely Certain

(ii) A dish contains equal numbers of green grapes and black grapes.
Pedro takes one grape at random from the dish.

Circle the best expression for the chance that Pedro takes a green grape. [1]

Impossible Unlikely Even chance Likely Certain

(b) One letter is chosen at random from the 9-letter word AUSTRALIA.

(i) On the probability scale below, mark with an arrow (↓) the probability that the letter chosen from the word AUSTRALIA is T. [1]



(ii) A, E, I, O, U are vowels.

On the probability scale below, mark with an arrow (↓) the probability that the letter chosen from the word AUSTRALIA is a vowel. [1]



Question taken from Eduqas examination paper 530001, May 2023

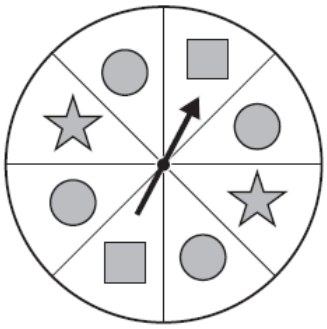
Probability Scales / Expressions: Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	3	
#3	5	
Total	11	

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#1 Two fair spinners are shown below.

Spinner A



Spinner B



(a) Each spinner is spun once.

Circle the expression that best describes the chance of each of the following events occurring.

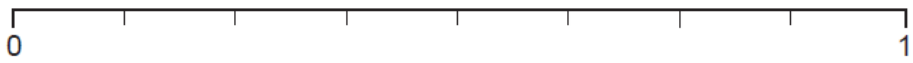
(i) Spinner A lands on a circle. [1]

impossible **unlikely** **even chance** **likely** **certain**

(ii) Spinner B lands on a square. [1]

impossible **unlikely** **even chance** **likely** **certain**

(b) Spinner B is spun once.
What is the probability it lands on a star?
Mark your answer with an arrow (↓) on the the probability scale below. [1]



Question taken from Eduqas examination paper 530002, November 2023

#2 Complete each sentence using the best expression from the box below. [3]

impossible	unlikely	an even chance	likely	certain

(a) It is ..... that you had a birthday in 2016.

(b) It is ..... that it will rain somewhere in the UK on 5th November.

(c) Priti rolls a fair six-sided dice once.

It is ..... that she will roll a 4.

Question taken from Eduqas examination paper 530002, November 2021

#3

(a) (i) One hundred tickets are sold in a raffle.
A ticket is to be selected at random and the person with that ticket wins the prize.
Sandra buys one of the tickets.

Circle the expression that describes the chance that Sandra wins the prize in the raffle. [1]

impossible **unlikely** **an even chance** **likely** **certain**

(ii) Henry has six pairs of shoes in his cupboard.
He picks one shoe out at random.

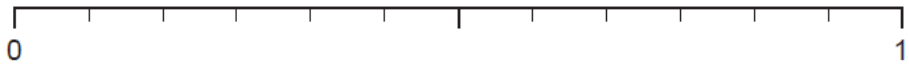
Circle the expression that describes the chance that Henry picks out a shoe for his left foot. [1]

impossible **unlikely** **an even chance** **likely** **certain**

(b) Zac has a bag containing 12 marbles.
1 marble is green, 3 are red and the rest are blue.
Zac chooses one marble at random from the bag.

On the probability scale shown below, label the points **A**, **B** and **C** where:

- **A** is the probability that Zac chooses a red marble
- **B** is the probability that Zac chooses a yellow marble
- **C** is the probability that Zac chooses a marble that is not green. [3]



Question taken from Eduqas examination paper 530002, November 2022

Properties of Probability Events: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	1	
#2	1	
#3	2	
#4	2	
#5	2	
#6	3	
#7	6	
Total	17	

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#1

(c) Simon is playing a game.
The probability that he wins the game is 0·7.

What is the probability that Simon does not win his game? [1]

.....

.....

Question taken from Eduqas examination paper 530001, November 2019

#2

One button is chosen at random from a bag of buttons.
The probability that it is yellow is 0·2.

What is the probability that the button chosen is **not** yellow? [1]

.....

.....

.....

Question taken from Eduqas examination paper 530001, June 2018

#3

A bag contains 100 identically-sized coloured balls.

A ball is selected at random.
The table shows the probability of choosing a blue ball, a red ball or a green ball.

Colour	Blue	Red	Green
Probability	0·42	0·3	0·18

Show that the bag must contain 10 balls that are **not** blue, red or green. [2]

.....

.....

.....

Question taken from Eduqas examination paper 530001, November 2023

#4

Ari has a **biased** spinner.
The numbers on the spinner are 1, 2, 3, 4, 5, 6, 7, 8, 9.

The table shows the relative frequencies of some events using Ari's spinner.

Event	Number less than 5	5	Number more than 5
Relative frequency	0·75	0·1	

What is the relative frequency of spinning a number more than 5? [2]

.....

.....

Question taken from Eduqas examination paper 530001, November 2022

#5

An art shop gives away a free copy of a photograph with purchases over £10.






The table shows the probability that each photograph, chosen at random, is given away.

Photograph	Flower	Mountain	Water	City
Probability	0·32	0·28	0·25	0·15

(a) Copies of these 4 photographs are the only photographs given away by the art shop in this offer.
Explain how you know this. [1]

.....

.....

.....

(b) Work out the probability that the photograph given away by the art shop is of the Water or City. [1]

.....

.....

Question taken from Eduqas examination paper 530001, November 2020

#6

Lewis has a bag containing 10 coloured counters.
He chooses one counter from the bag at random.

(a) There is an even chance that Lewis chooses a blue counter.
How many blue counters are there in his bag? [1]

.....

(b) It is impossible for Lewis to choose a red counter.
How many red counters are there in his bag? [1]

.....

(c) It is unlikely that Lewis chooses a yellow counter.
What is the smallest number of yellow counters that Lewis could have in his bag? [1]

.....

Question taken from Eduqas examination paper 530001, May 2024

#7

A bag contains some coloured counters.
Some are red, some are yellow, some are orange and the rest are green.

One counter is selected at random from the bag.

The probability of selecting:
- a yellow counter is twice the probability of selecting an orange counter
- a green counter is three times the probability of selecting a yellow counter.

(a) Write down the ratio of the number of yellow counters to the number of orange counters to the number of green counters. [2]

yellow counters : orange counters : green counters = ... : ..... : .....

(b) The probability of selecting a red counter is 0·46.

What is the probability of selecting a green counter?
You must show all your working. [4]

Probability of selecting a green counter = ...

Question taken from Eduqas examination paper 530001, November 2024

Properties of Probability Events: Calculator

Question	Maximum Mark	Mark Awarded
#1	1	
#2	1	
#3	5	
#4	6	
#5	6	
#6	6	
Total	25	

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#1

(a) James is looking at this set of numbers.

0·45 0·4 0·0005 1·25 0·99

He says,

"They are all probabilities because they are decimals."

Is James correct? [1]

Yes ☐ No ☐

Give the reason for your answer.

.....

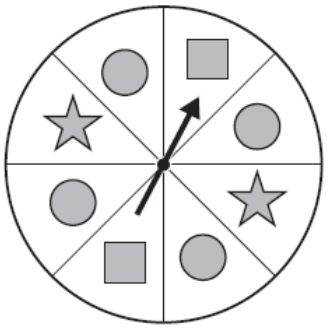
.....

Question taken from Eduqas examination paper 530002, June 2019

#2

Two fair spinners are shown below.

Spinner A



Spinner B



(c) A different spinner, spinner C, is spun once.

The probability that spinner C lands on a star is $\frac{3}{16}$.

What is the probability that spinner C does **not** land on a star? [1]

.....

.....

Question taken from Eduqas examination paper 530002, November 2023

#3

Zara makes necklaces by threading beads onto lengths of string.



(a) She uses a bag of beads that contains pink, yellow, green and blue beads.
In the bag:

- half of the beads are pink
- there are half as many yellow beads as pink beads
- there are an equal number of green beads and blue beads.

Zara selects a bead at random from the bag.

Complete the table below to show the probability of selecting each colour. [2]

Colour	Pink	Yellow	Green	Blue
Probability				

(b) Zara makes necklaces of two different lengths.
The length of string for each long necklace is y cm.
The string for each short necklace is 11 cm shorter than the string for a long necklace.

Write an expression, in terms of y, for the **total length** of string needed to make one long necklace and two short necklaces.
Simplify your answer. [3]

Question taken from Eduqas examination paper 530002, November 2024

#4

(a) Geomet High School has 740 students.

Each student was asked which method of travel listed below was their main method of travel to school.

The table below shows the methods of travel together with some of their probabilities.

Method of travel	Walk	Bus	Bike	Car	Train	Other
Probability	0·2	0·35	0·3			0

(i) A student is chosen at random.

What is the probability that this student walks to school or travels to school by bus? [1]

(ii) How many of the 740 students travel to school by bus? [2]

(iii) The probability that a student travels to school by car is **twice** the probability that a student travels to school by train.

Calculate the probability that a student travels to school by train. [3]

Question taken from Eduqas examination paper 530002, June 2023

#5

A set of raffle tickets numbered 1 to 500 are all sold at a charity event.
A ticket, picked at random, wins the only prize.

(a) What is the probability that the number on the winning ticket is 20? [1]

.....

.....

(b) What is the probability that the number on the winning ticket is greater than 200? [1]

.....

.....

(c) Ben has bought 8 of the tickets.
He says,

"I have a 50% chance of winning because either I win or I don't win."

Is Ben correct?

Yes ☐ No ☐

Explain your answer. [1]

.....

.....

.....

.....

(d) The probability that Zac wins the prize is 0.01.

(i) What is the probability that Zac does **not** win the prize? [1]

.....

.....

(ii) How many raffle tickets does Zac have? [2]

.....

.....

Question taken from Eduqas examination paper 530002, November 2020

#6

Faheema has a sack that contains a number of identical balls of different colours.



The table below shows the probability of randomly choosing a ball that is red, green, yellow or blue.

Colour	Red	Green	Yellow	Blue
Probability	0·32	0·46	0·1	0·12

(a) Faheema claims:

"There are other balls that are not red, green, yellow or blue in the sack."

Explain why she is incorrect. [1]

.....

.....

(b) A ball is chosen at random from the sack.

Calculate the probability that this ball is either green or yellow. [1]

.....

.....

.....

(c) Faheema uses the sack of balls for a game at her school fair.

In the game, each person pays 50p to choose a ball at random from the sack.
The ball is then returned to the sack.

The player wins a prize worth £2.95 if a blue ball is chosen.

150 people each played the game once.

How much profit would you expect Faheema to make?
You must show all your working. [4]

Question taken from Eduqas examination paper 530002, June 2022

Probability from Listing All Possible Outcomes: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	3	
#3	3	
Total	9	

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#1

(c) (i) Sanjeet is choosing what to take for lunch.
He chooses from the following options.

Sandwich (S) or Pasty (P) and Apple (A) or Banana (B) and Tea (T) or Coffee (C)

Complete the table to show all the different choices that Sanjeet has.
The first two have been completed for you.
You may not need all the lines in the table. [2]

S	A	T
S	A	C

(ii) Sanjeet is equally likely to choose any of the possible options.

What is the probability that he chooses a sandwich, a piece of fruit and a coffee? [1]

.....

.....

.....

Question taken from Eduqas examination paper 530001, June 2018

#2

(a) Joanie is choosing what to wear.
She chooses from the following options.

Trousers Black (B) or Grey (G)	and	**Top** White (W) or Red (R)	and	**Trainers** Pink (P) or Yellow (Y)

(i) Complete the table to show all the different choices that Joanie has.
The first two have been completed for you. [2]

Trousers	Top	Trainers
B	W	P
B	W	Y

You may not need all the lines in the table.

(ii) Joanie is equally likely to choose any of the possible options.

What is the probability that she chooses grey trousers, a red top and yellow trainers? [1]

.....

.....

.....

Question taken from Eduqas examination paper 530001, May 2023

#3

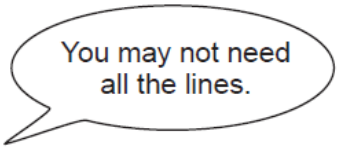
Miss Watkins picks a team of one girl and one boy to take part in a competition.

She chooses the team from these students.

Girls:	Poppy (P)	Ruby (R)	Sally (S)	Zoe (Z)
Boys:	Tariq (T)	Will (W)		

(a) Complete the list to show all the different options that Miss Watkins has.
The first two have been completed for you. [2]

Girl	Boy
P	T
P	W



(b) Miss Watkins is equally likely to choose any of the possible options.

What is the probability that she chooses Sally and Tariq? [1]

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.....

.....

Question taken from Eduqas examination paper 530001, May 2022

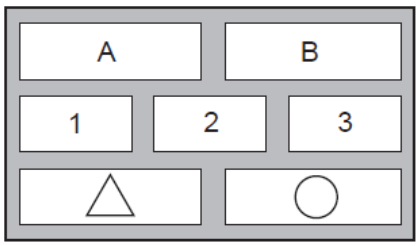
Probability from Listing All Possible Outcomes: Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	5	
Total	8	

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#1

Jade must enter a code to open her safe by pressing three buttons.
The code consists of one letter, one number and one shape.



(a) List all the possible code combinations.
One has been completed for you. [2]

Letter	Number	Shape
A	1	△

You may not need to use all the lines.

(b) Jade has forgotten her code.
She enters one letter, one number and one shape at random.

What is the probability that she enters the correct code? [1]

.....

.....

Question taken from Eduqas examination paper 530002, June 2024

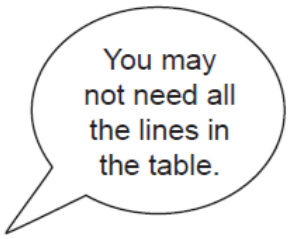
#2

(a) Three fair coins are thrown at the same time.



(i) Complete the table to list all the different possible outcomes.
The first row has been completed for you. [2]

Coin 1	Coin 2	Coin 3
H	**H**	**H**



(ii) Write down the probability that the outcome is three heads. [1]

.....

(b) When four fair coins are thrown at the same time, the probability that the outcome is two heads and two tails is 0·375.

If the same four coins are thrown 136 times, how many times would you expect to get the outcome two heads and two tails? [2]

.....

.....

.....

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Question taken from Eduqas examination paper 530002, November 2023

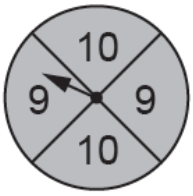
Outcomes of Probability Experiments from Tables / Frequency Trees: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	3	
#3	6	
Total	12	

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#1





The diagram shows a fair 8-sided dice, numbered from 1 to 8, and a fair spinner.

Jamie rolls the dice and spins the spinner.
He then multiplies the two scores.

(a) Complete the diagram to show all Jamie's possible outcomes.

Spinner									
	10	10	20			50	60	70	80
	9	9	18		36		54	63	72
	×	1	2	3	4	5	6	7	8
		Dice							

[1]

(b) Find the probability that Jamie's outcome is an even number greater than 50. [2]

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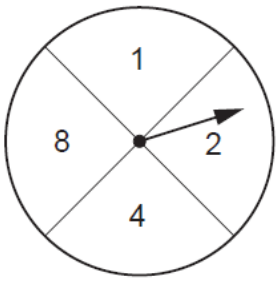
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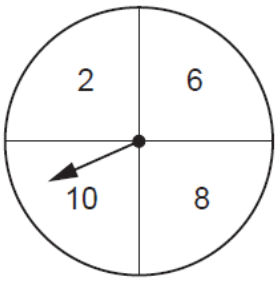
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Question taken from Eduqas examination paper 530001, June 2019

#2

Maria is playing a game with two fair spinners.
She spins each spinner once.





She adds the two scores together.

(a) Complete the diagram to show all the possible totals. [1]

		Spinner 2			
	+	2	6	8	10
Spinner 1	1	3	7	9	11
	2	4	8	10	
	4	6	10		
	8	10			

(b) Maria wins the game when the total is 10 or less.

What is the probability that Maria does **not** win the game? [2]

Question taken from Eduqas examination paper 530001, November 2021

#3

(a) There are 10 marbles in a bag.
The table shows the number of marbles of each colour.

Red	Green	Blue	Pink
4	3	1	2

Meena takes a marble from the bag without looking.

(i) Complete this statement with a colour.

The probability that Meena takes a ..... marble is $\frac{1}{5}$. [1]

(ii) Write down the probability that Meena takes a yellow marble. [1]

(iii) Work out the probability that Meena does **not** take a red or green marble. [2]

(b) Netta has a tub containing 12 white tennis balls and 8 green tennis balls.
She puts some more green tennis balls into the same tub.
She then chooses a tennis ball at random from the tub.

The probability that Netta picks a white tennis ball is $\frac{2}{5}$.

How many more green tennis balls did Netta put in the tub? [2]

Question taken from Eduqas examination paper 530001, November 2018

Outcomes of Probability Experiments from Tables / Frequency Trees: Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	4	
#3	5	
#4	5	
#5	6	
Total	23	

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#1

(d) Jago is using a spinner.

The spinner can only land on one of the colours; purple, red, blue, orange or yellow.

The probabilities of yellow and purple occurring on any spin of the spinner are shown in the table below.

Colour	Purple	Red	Blue	Orange	Yellow
Probability	0·33				0·25

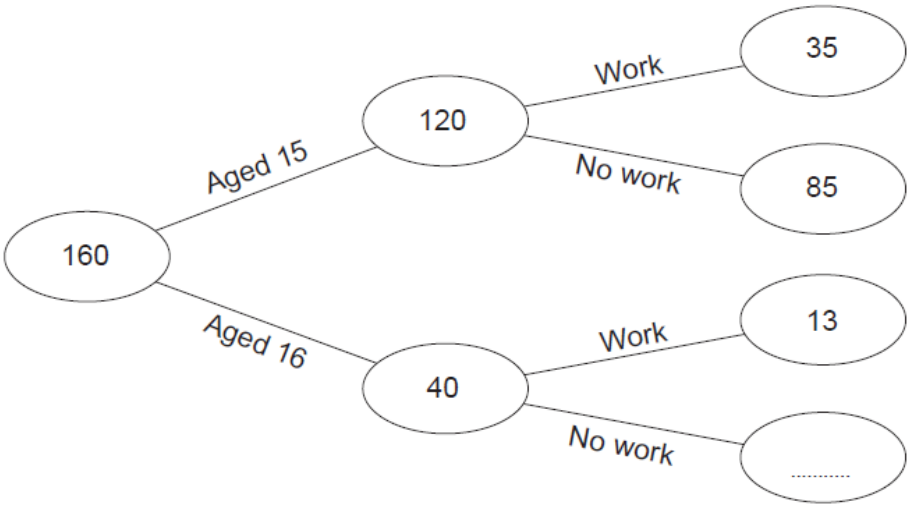
The probabilities of the spinner landing on red, blue and orange are all **equal**.

Complete the table. [3]

Question taken from Eduqas examination paper 530002, June 2019

#2

In November 2018, a survey was completed by all the students in Year 11 at *Thomas Bees Academy*. Students were asked their age and whether they had any part-time work.
Some of this information is shown in the frequency tree below.



(a) How many of the students were aged 15 in November 2018? [1]

.....

(b) In total, how many of the students do not have any part-time work? [2]

.....

(c) The same survey was repeated in April 2019.
No students had joined or left Year 11.
The number of students aged 15 who had part-time work was only 23.
Explain why this change may have happened. [1]

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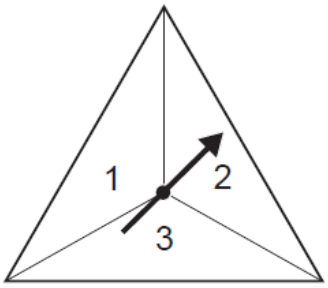
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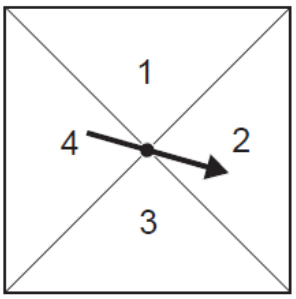
Question taken from Eduqas examination paper 530002, June 2019

#3

Hubert plays a game.
He spins these two fair spinners.



Spinner 1



Spinner 2

Hubert calculates a score. He **squares** the number on spinner 1 and **multiplies** it by the number on spinner 2.

(a) Complete the table below to show all the possible scores. [2]

Spinner 1					
	3	9	.....	.....	.....
	2	.....	.....	.....	16
	1	1	.....	.....	.....
		1	2	3	4

Spinner 2

(b) To win the game Hubert must score **more than** 9.
He plays the game 108 times.

How many times would you expect him to win? [3]

.....

.....

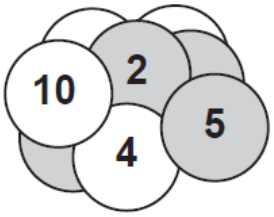
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Question taken from Eduqas examination paper 530002, November 2022

#4

Four white discs and four grey discs each have whole numbers written on them.



In a game, the discs are turned face down.
A player chooses one white disc and one grey disc at random.
The player's score is calculated by dividing the bigger number by the smaller number.

(a) The table below shows some of the numbers on the discs and some possible scores.
Complete all the missing entries. [2]

Grey disc \ White disc	12	3	2	1·2
.....				
5	.....	.....	1·2	.....
4	4	1	1·5	2·5
2	2	.....	3	5
	1	4	.....	10

Score

White disc

(b) To win the game, a player must get a score greater than 2.

(i) Dante plays the game once.
Calculate the probability that he wins the game. [1]

(ii) Jenna played the game 224 times.
How many games would you expect her to win? [2]

Question taken from Eduqas examination paper 530002, November 2024

#5

A biased dice has been used for an experiment.

The probabilities of 1, 2, 3 and 6 occurring on any throw of the dice are shown in the table below.



Number on dice	1	2	3	4	5	6
Probability	0·1	0·17	0·24			0·25

The probability of throwing a 4 is **the same** as the probability of throwing a 5.

(a) Complete the table. [3]

(b) The dice is thrown once. Calculate the probability of throwing a number less than 4. [1]

(c) The dice is thrown 600 times.
Show that a 2 is expected to occur more than 100 times. [2]

Question taken from Eduqas examination paper 530002, November 2018

Expected Outcomes: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	5	
Total	5	

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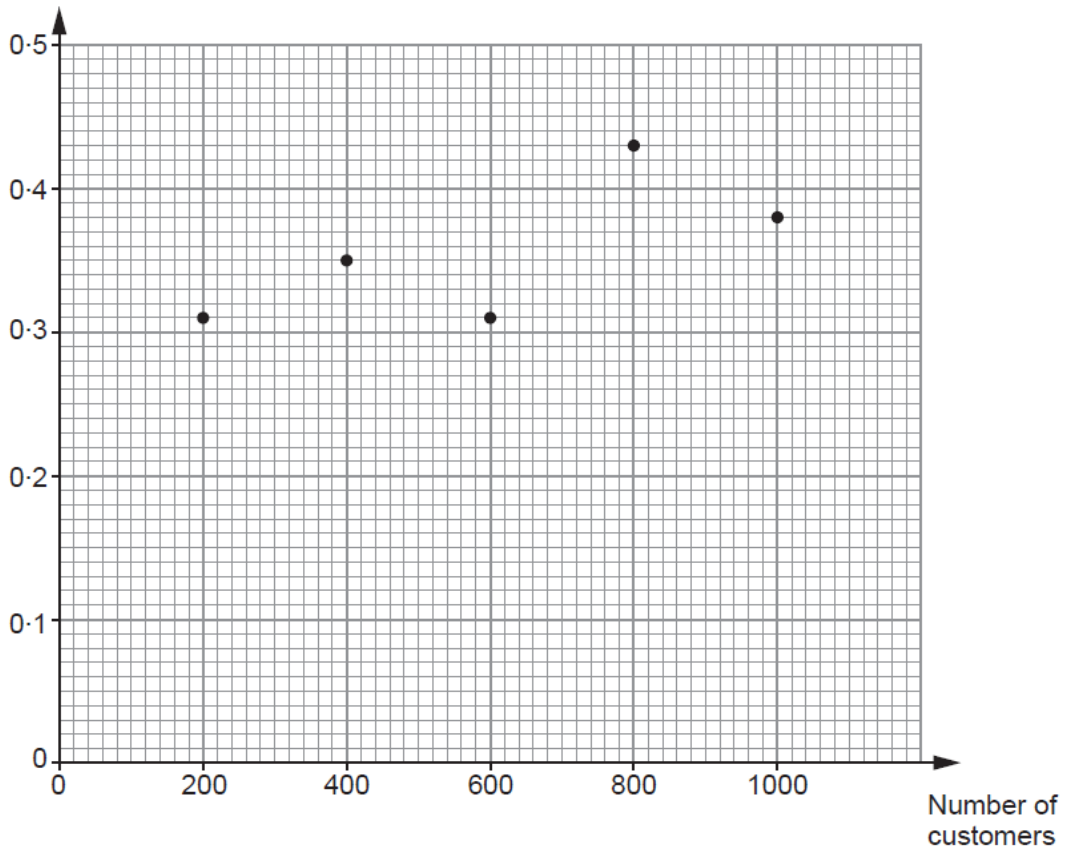
#1

Novak's online chocolate company has a special offer.



Novak records the number of free sample boxes he sends to his customers.

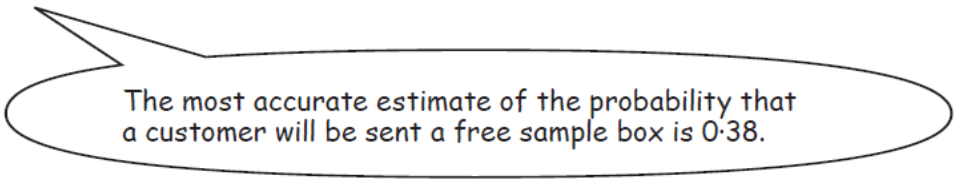
The graph shows the relative frequency that a customer has been sent a free sample box after 200, 400, 600, 800 and 1000 customer orders.



(a) What is the total value of the free sample boxes that Novak sent his first 400 customers? [4]

Total value of free sample boxes is £ .....

(b) Novak says:



Is he correct?

Yes ☐ No ☐

Explain how you decide. [1]

Question taken from Eduqas examination paper 530001, November 2021

Expected Outcomes: Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
#2	3	
#3	5	
Total	10	

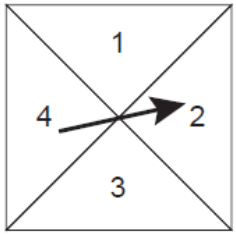
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eduqas Part of WJEC Question Bank

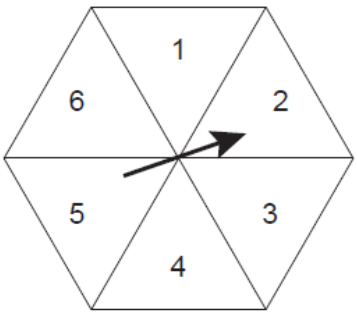
#1

(b) James rolled a fair 6-sided dice 24 times.
How many times would you expect James to roll a six? [1]

.....

(c) The diagrams show a fair 4-sided spinner and a fair 6-sided spinner.





Which spinner has the greater chance of landing on a 2? [1]

4-sided spinner ☐ 6-sided spinner ☐

Show how you decide.

.....

.....

.....

.....

Question taken from Eduqas examination paper 530002, June 2019

#2

Rashid plays a game.
Each time he can score 1 point, 5 points or 10 points.
The table shows the probability of each outcome.

Points	Probability
1	0·80
5	0·15
10	0·05

Rashid plays the game 40 times.

How many times does he expect to score more than 1 point? [3]

Question taken from Eduqas examination paper 530002, November 2020

#3

Three friends, Jane, Caroline and Eddie, each throw the **same** dice 40 times.
Their results are shown in the table below.

	Score on the dice					
	1	**2**	**3**	**4**	**5**	**6**
Jane	8	4	8	8	4	8
Caroline	8	5	7	7	5	8
Eddie	8	2	9	9	4	8

(a) Do you think this dice is fair?
You must give a reason for your answer. [1]

Yes ☐ No ☐ Don't know ☐

(b) What is the best estimate of the probability of scoring a 2 on this dice? [2]

(c) Using Jane's, Caroline's and Eddie's results, how many times would you expect a score greater than 4 to occur in 480 throws of this dice? [2]

Question taken from Eduqas examination paper 530002, June 2018

Two-Way Tables: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	5	
#2	7	
Total	12	

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#1

A running club has 125 members.
Each member is either a sprinter, a middle-distance runner or a long-distance runner.

82 members are seniors.
45 members are long-distance runners and 5 of these are juniors.
28 members are senior middle-distance runners.
There are 3 more junior sprinters than senior sprinters.

A person is selected at random from the club.

Find the probability that this person is a junior middle-distance runner.
Use this table to help you. [5]

	Sprinter	Middle-distance runner	Long-distance runner	Total
Senior				
Junior				
Total				

Probability .....

Question taken from Eduqas examination paper 530001, November 2021

#2

(a) There are 45 swimmers in *Top Swim* club.

All swimmers are learning butterfly and backstroke and are asked which they prefer.

- $\frac{3}{5}$ of all swimmers prefer backstroke.
- The number of juniors is double the number of seniors in the club.
- $\frac{1}{6}$ of the juniors prefer butterfly.

Work out the proportion of swimmers who are seniors and prefer backstroke.
You may use the table to help you. [5]

	Prefer to swim		Total
	Butterfly	Backstroke	
Seniors			
Juniors			
Total			45

Proportion .....

(b) *The Sharks* club has two types of membership: swimmers or divers.
The ratio of swimmers to divers is 8 : 3.
18 members of the club are divers.

How many members does *The Sharks* club have? [2]

.....

.....

.....

.....

.....

..... members

Question taken from Eduqas examination paper 530001, November 2019

Two-Way Tables: Calculator

Question	Maximum Mark	Mark Awarded
#1	4	
Total	4	

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#1 The table below has been partly filled in to show the number of boys and girls in years 7, 8 and 9 at *Sir Henry Granger School*.

	Year 7	Year 8	Year 9	Total
Boys	.....	75	74	222
Girls	87	.....	72	236
Total	160	152	.....	458

(a) Complete the table. [2]

.....

.....

(b) What is the difference between the number of Year 7 girls and the number of Year 9 girls? [1]

.....

.....

(c) A student is to be chosen at random from these 458 students.

From which group is the student most likely to be chosen?
Circle the correct answer. [1]

Year 7 Boy Year 8 Boy Year 9 Boy

Year 7 Girl Year 8 Girl Year 9 Girl

Question taken from Eduqas examination paper 530002, November 2018

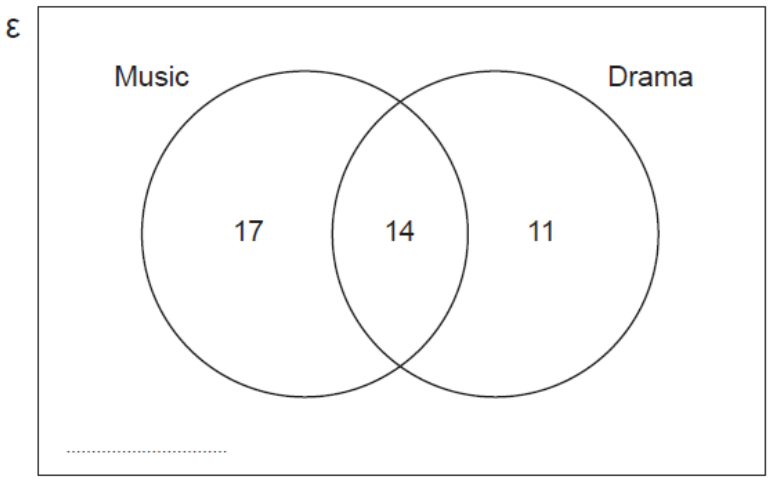
Venn Diagrams: Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	4	
#3	4	
#4	4	
#5	4	
#6	4	
Total	23	

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eduqas Part of WJEC Question Bank

#1

(b) The Venn diagram shows information about the number of students who study Music and Drama in Year 11 at Geomet High School.



There are 104 students in Year 11.

(i) Complete the Venn diagram to show the number of students in Year 11 who do **not** study Music or Drama. [1]

.....

(ii) What is the probability that a student chosen at random from Year 11 studies Music? [2]

.....

.....

.....

Question taken from Eduqas examination paper 530002, June 2023

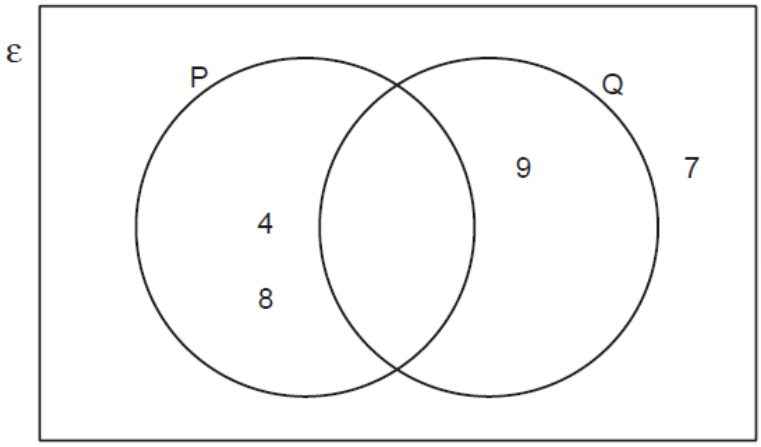
#2

$\varepsilon = \{2,3,4,5,6,7,8,9\}$

P = {even numbers}

Q = {numbers divisible by 3}

(a) Complete the Venn diagram below. [2]



(b) A number is chosen at random from the numbers 2 to 9.

What is the probability that the number chosen is odd and **not** divisible by 3? [2]

.....

Question taken from Eduqas examination paper 530002, June 2018

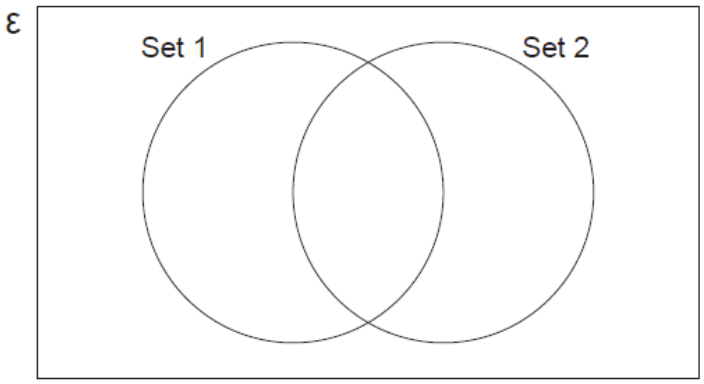
#3

The universal set (ε), contains the letters from the word TRAPEZIUM.

Set 1 contains the letters of the word PRIME.

Set 2 contains the letters of the word TERM.

(a) Show the information in the Venn diagram below. [2]



(b) A letter is chosen at random from the word TRAPEZIUM.

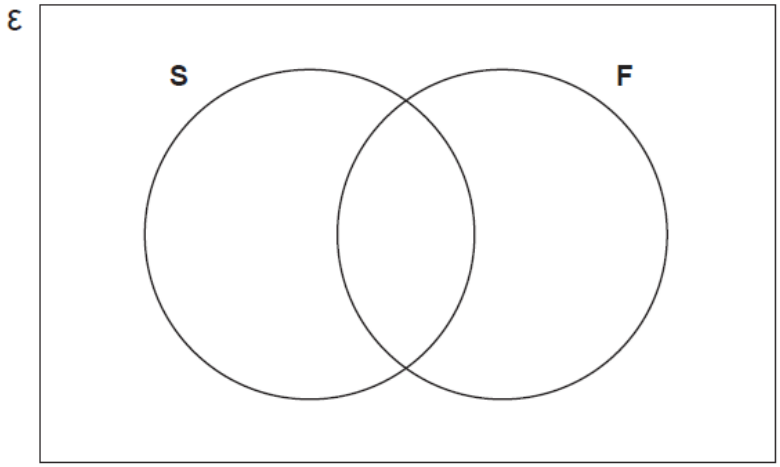
What is the probability that the letter chosen is in both of the words PRIME and TERM? [2]

Question taken from Eduqas examination paper 530002, June 2019

#4 The universal set (Ɛ) contains the numbers 4, 9, 12, 18, 23, 32, 50, 64 and 72.

S is the set of square numbers.
F is the set of factors of 36.

(a) Show this information on the Venn diagram below. [2]



(b) A number is selected at random from the universal set (Ɛ).

Find the probability that the number selected is a factor of 36 but **not** a square number. [2]

Question taken from Eduqas examination paper 530002, November 2023

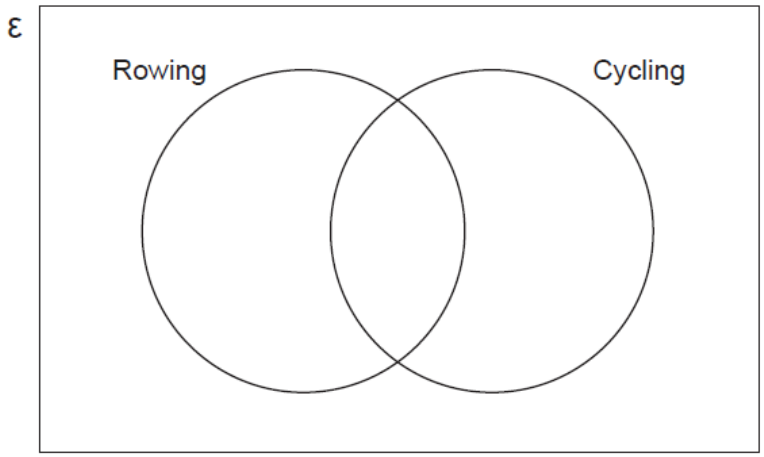
#5

There are 50 people in a sports club.
Two of the sports the people can take part in are rowing and cycling.

Of these 50 people:

- 27 take part in rowing
- 32 take part in cycling
- 8 do not take part in rowing or cycling.

(a) Complete the Venn diagram to show this information. [2]



(b) One person is chosen at random from the sports club.
Find the probability that they take part in rowing but not in cycling. [2]

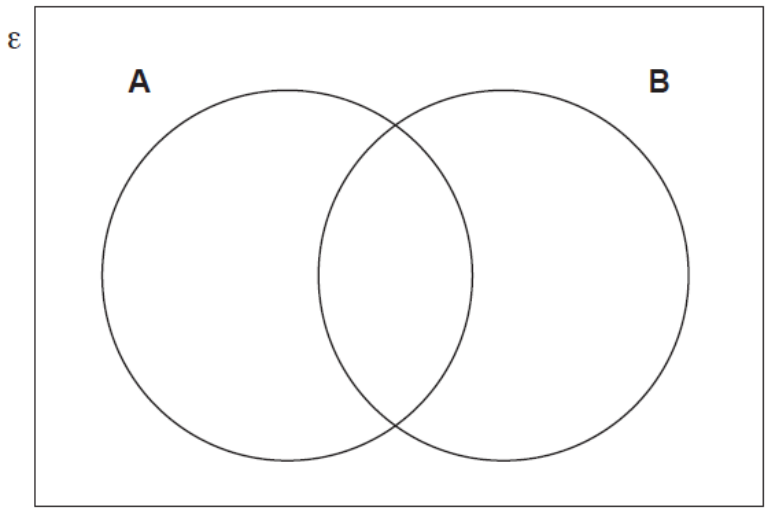
Question taken from Eduqas examination paper 530002, June 2024

#6

The universal set (ε) contains the numbers 31, 32, 33, 34, 35, 36, 37, 38, 39 and 40.

A is the set of odd numbers.
B is the set of multiples of 3.

(a) Show this information on the Venn diagram below. [2]



(b) A number is selected at random from the universal set (ε).

Find the probability that the number selected is an odd number but not a multiple of 3. [2]

.....

.....

.....

Question taken from Eduqas examination paper 530002, June 2022

Probability of Independent / Dependent Combined Events: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
#2	2	
#3	2	
Total	6	

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#1

(b) The charity has a Fun Day to raise money.

Alfie is in charge of a game of chance.

- A fair spinner is marked with the numbers 1 to 10.
- A player spins once and wins £2 if the spinner lands on 6.

Liam plays the game exactly twice.
Work out the probability that Liam wins £4. [2]

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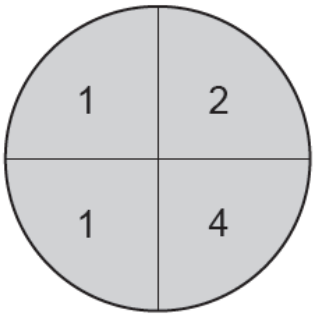
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Question taken from Eduqas examination paper 530001, June 2018

#2

The diagram shows a dartboard with 4 sectors of equal size.





Sanjeev throws 3 darts which all hit this dart board.
Each dart is equally likely to hit any sector of the dart board.

He **multiplies** his three numbers to find his score.

Work out the probability that his score is an odd number. [2]

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.....

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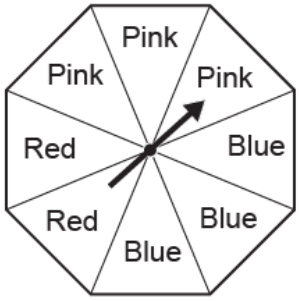
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Question taken from Eduqas examination paper 530001, November 2019

#3



The diagram shows a fair spinner.
Eve spins it twice.

What is the probability that the spinner lands on red both times? [2]

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.....

Question taken from Eduqas examination paper 530001, May 2023

Tree Diagrams: Non-Calculator

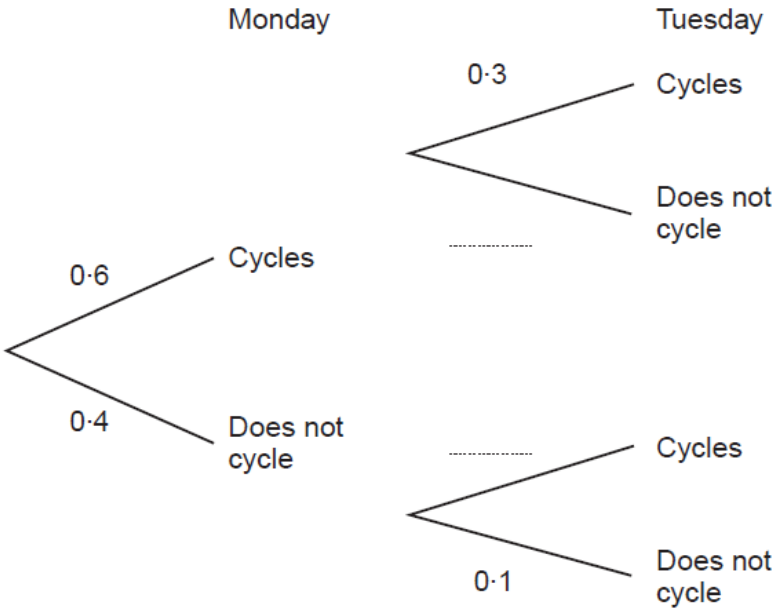
Question	Maximum Mark	Mark Awarded
#1	5	
#2	6	
#3	7	
Total	18	

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#1

The probability that Kathy cycles to work on Monday is 0·6.
If she cycles to work on Monday, the probability that she cycles to work on Tuesday is 0·3.
If she does **not** cycle to work on Monday, the probability that she does **not** cycle to work on Tuesday is 0·1.

(a) Complete the tree diagram. [1]



(b) Calculate the probability that Kathy cycles to work on both Monday and Tuesday. [2]

.....

.....

.....

(c) Calculate the probability that Kathy does **not** cycle to work on either day. [2]

.....

.....

.....

.....

Question taken from Eduqas examination paper 530001, May 2022

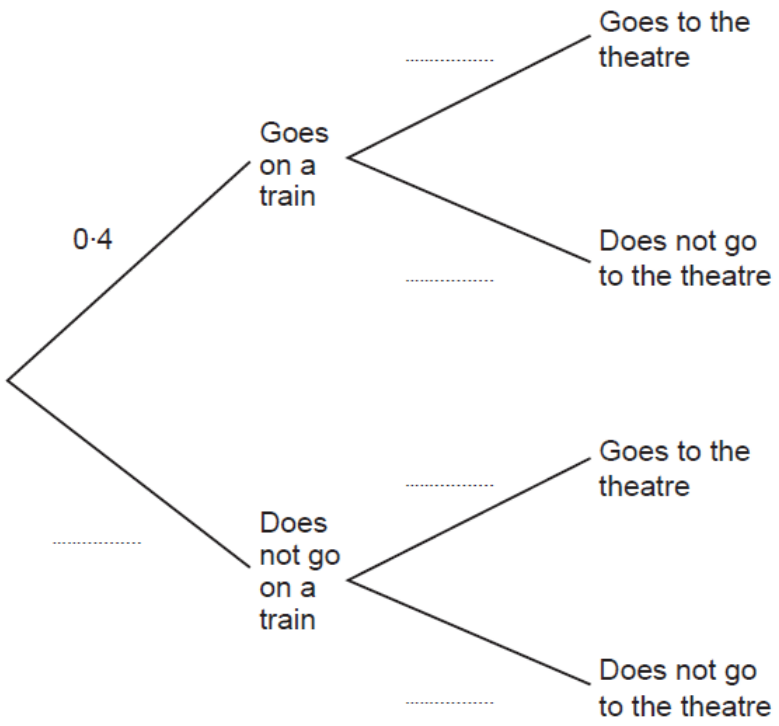
#2

Kate is visiting London.

The probability that she will go on a train is 0·4.
The probability of Kate going to the theatre is independent of her going on a train.

The probability that she goes on a train and goes to the theatre is 0·28.

(a) Complete the following tree diagram. [4]



(b) Calculate the probability that Kate does not go on a train and does not go to the theatre. [2]

Question taken from Eduqas examination paper 530001, November 2023

#3

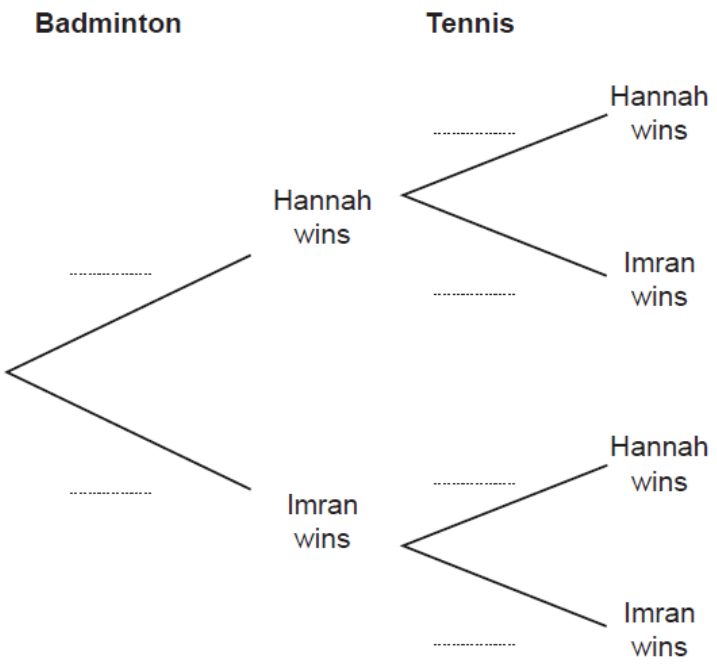
Hannah and Imran often play badminton and tennis matches against each other.

The probability that Hannah wins a badminton match is $\frac{9}{10}$.

The probability that Hannah wins both a badminton match **and** a tennis match is $\frac{9}{50}$.

One Saturday, Hannah and Imran play one badminton match and one tennis match.
The outcomes of the matches are independent.

(a) Complete the tree diagram below. [4]



(b) Calculate the probability that Hannah wins exactly one match. [3]

Question taken from Eduqas examination paper 530001, November 2024

Tree Diagrams: Calculator

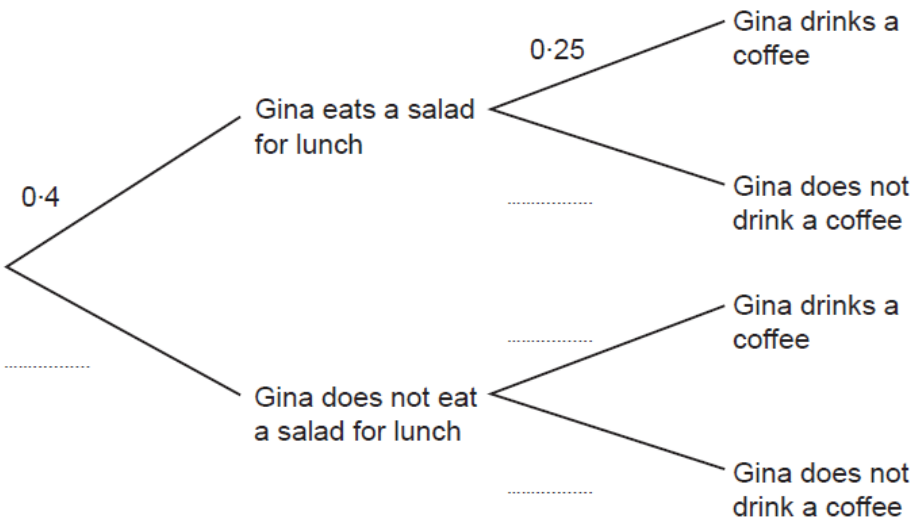
Question	Maximum Mark	Mark Awarded
#1	4	
Total	4	

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#1

For her lunch, Gina sometimes eats a salad and sometimes drinks a coffee.
The probability she eats a salad for lunch on a given day is 0·4.
The probability she drinks a coffee on a given day is 0·25.
Eating a salad for lunch and drinking a coffee are independent.

(a) Complete the following tree diagram. [2]



(b) Calculate the probability that, on a given day, Gina does not eat a salad for lunch but does drink a coffee. [2]

Question taken from Eduqas examination paper 530002, June 2024

Constructing and / or Interpreting Tables / Charts / Diagrams: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	1	
#2	2	
#3	2	
#4	2	
#5	2	
#6	3	
#7	4	
#8	4	
#9	4	
#10	4	
#11	4	
#12	5	
#13	5	

#14	5
#15	6
#16	7
Total	60

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#1

(a) One Saturday, Alfie records the amount of money each customer spends in a charity shop.
He presents his data in a grouped frequency table, as shown below.

Money spent (£)	Frequency
0 to 20	62
20 to 40	8
40 and over	1

State one criticism of the way Alfie has presented his data. [1]

.....

.....

Question taken from Eduqas examination paper 530001, June 2018

#2

(a) Eve is thinking about joining Dandale Karate Club as a beginner.
The pictogram shows the costs Eve would need to pay to become a club member.

Costs for Club Membership

Beginners' course	▭▭▭▭▭ ▭▭▭▭▭ ▭▭▭▭▭ ▭▭▭▭▭
Karate suit	▭▭▭▭▭ ▭▭▭▭▭ ▭▭
Club badge	▭▭▭▭▭ ▭▭▭▭
Association licence	▭▭▭▭▭ ▭▭▭▭▭ ▭▭▭▭▭

Key: ▭▭▭▭▭ represents £10

How much would it cost Eve to become a club member? [2]

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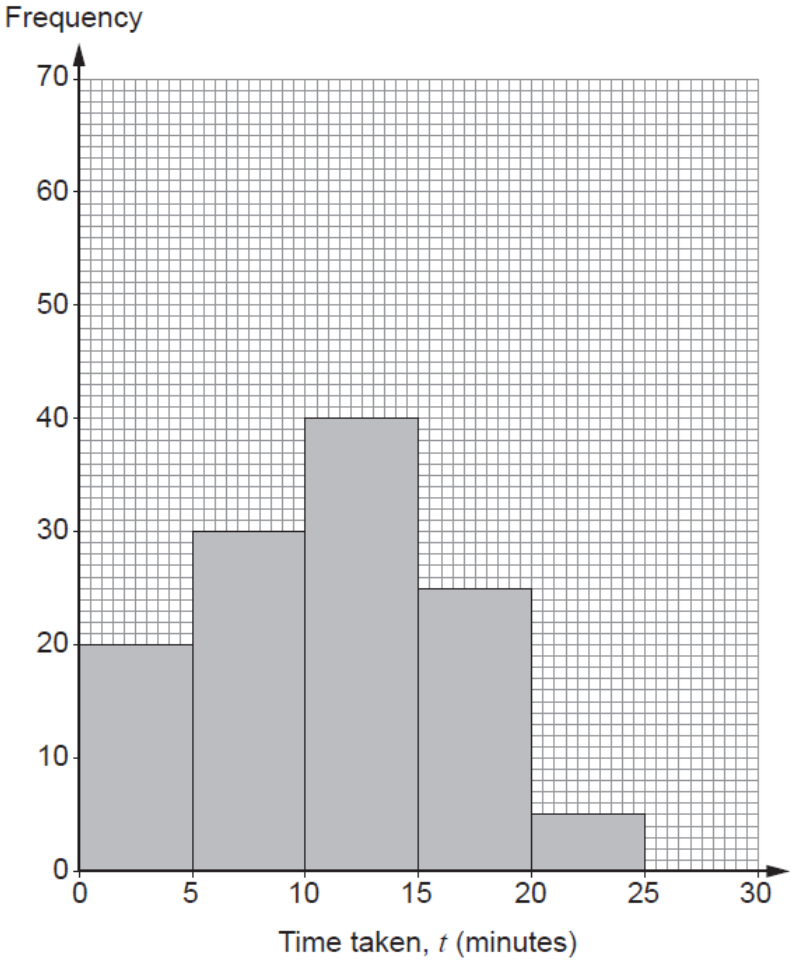
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To become a club member costs £ .....

Question taken from Eduqas examination paper 530001, November 2018

#3

120 people each completed a puzzle.
The times taken to complete the puzzle are shown in the diagram below.
The diagram uses groups of width 5 minutes: $0 \leqslant \text{time} < 5$, $5 \leqslant \text{time} < 10$, and so on.



A person is chosen at random.

What is the probability that this person took less than 15 minutes to complete the puzzle? [2]

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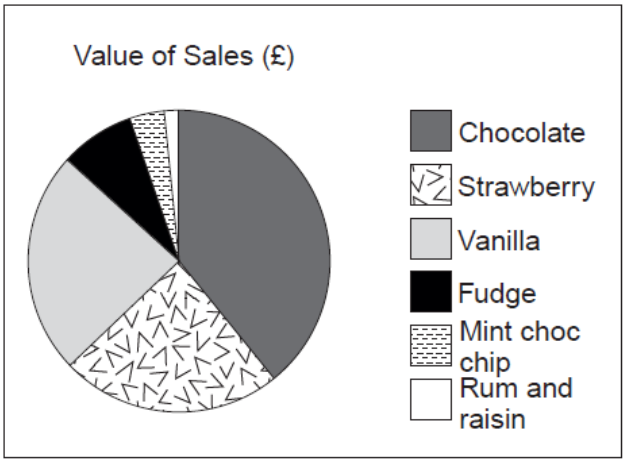
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Question taken from Eduqas examination paper 530001, November 2023

#4 Cherie is in charge of marketing for a tourist attraction.

(a) One weekend, she collects some data about the value of ice cream sales from the café. She records her data in a table and uses it to draw a pie chart.

Ice cream flavour	Value of sales (£)
Chocolate	500
Strawberry	300
Coffee	0
Vanilla	300
Fudge	100
Green tea	0
Mint choc chip	50
Rum and raisin	20



State one criticism of the use of a pie chart to display her data. [1]

.....

.....

(b) Cherie also records the number of visitors to the tourist attraction each season for 4 years.
Her results are shown in the table.

	Season	Winter	Spring	Summer	Autumn
Visitors (thousands)	2015	9	14	19	13
	2016	9	13	17	12
	2017	6	11	14	9
	2018	4	8	15	10

Comment on the trend in the **annual** number of visitors shown by the data in the table. [1]

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Question taken from Eduqas examination paper 530001, June 2019

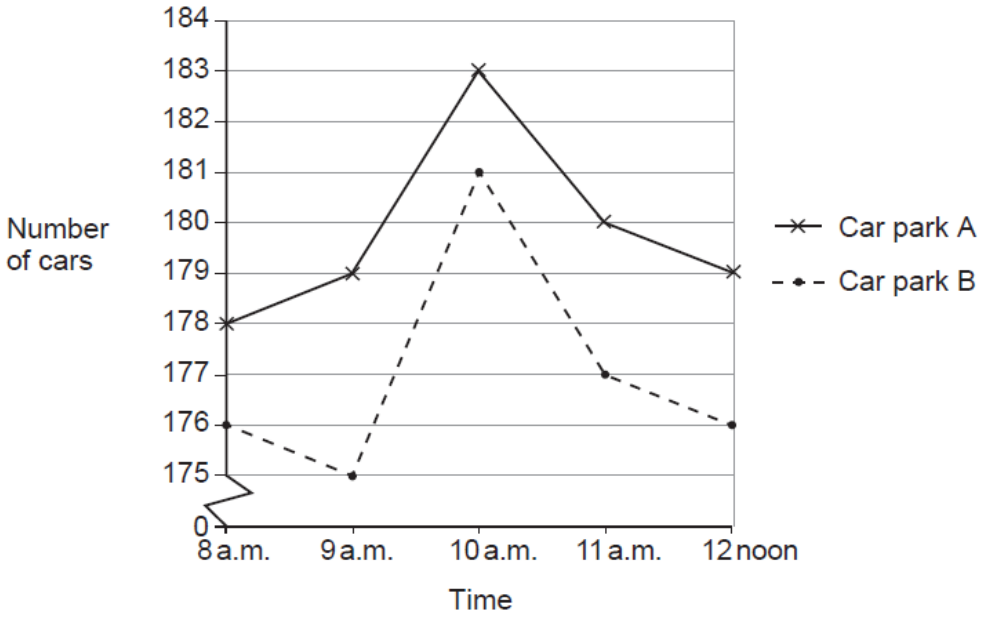
#5

Peter and Paula record the number of cars in each of two airport car parks, A and B, between 8 a.m. and 12 noon one Saturday morning.
This was done to find out if there was a peak time for parking during that period.

The table shows the data they collected.

Time	8 a.m.	9 a.m.	10 a.m.	11 a.m.	12 noon
Number of cars in car park A	178	179	183	180	179
Number of cars in car park B	176	175	181	177	176

Paula draws this graph to represent the data.



Peter says,

"This graph is not sensible as it does not show the data fairly."

(a) What has been done in the drawing of the graph that has made Peter think this? [1]

.....

.....

.....

(b) What error might this lead to, for people who do not look carefully at the graph? [1]

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Question taken from Eduqas examination paper 530001, November 2020

#6

One day Phoebe recorded the number of hours of sunshine in some cities in England.
The pictogram below shows some of her results.

London			
Newcastle			
Birmingham			
Liverpool			
Southampton			

Key:  represents ..... hours

(a) There were 10 hours of sunshine in London.
Complete the key for the pictogram. [1]

(b) How many more hours of sunshine did Liverpool have than Newcastle? [1]

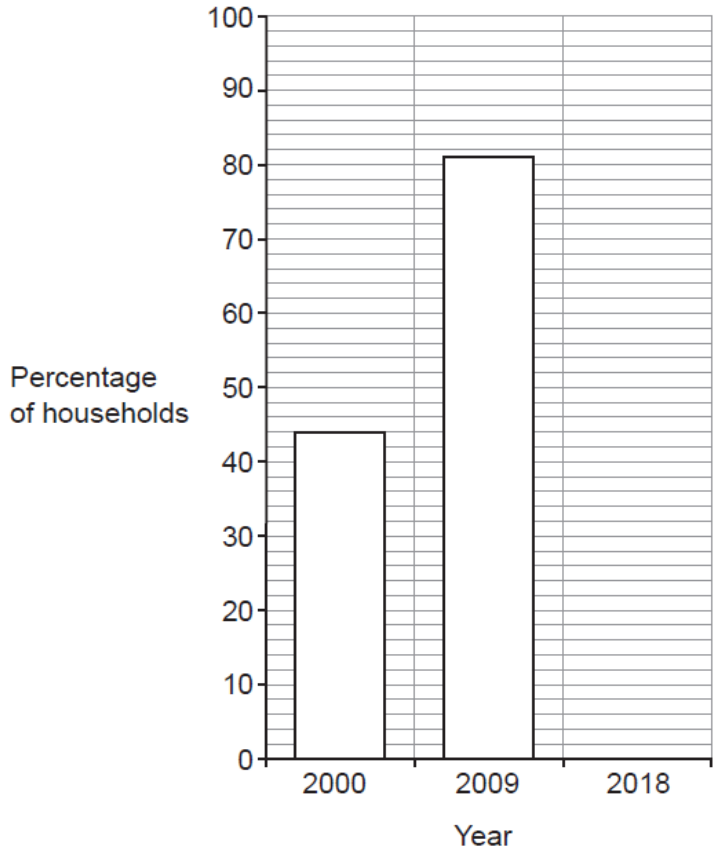
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(c) There were 7 hours of sunshine in Southampton.
Complete the pictogram. [1]

Question taken from Eduqas examination paper 530001, November 2024

#7

The bar chart shows the percentage of households in the UK who owned at least one mobile phone in the years 2000 and 2009.



(a) What was the increase in the percentage of households who owned at least one mobile phone from 2000 to 2009? [2]

(b) In 2018, 95% of households in the UK owned at least one mobile phone.

Complete the bar chart. [1]

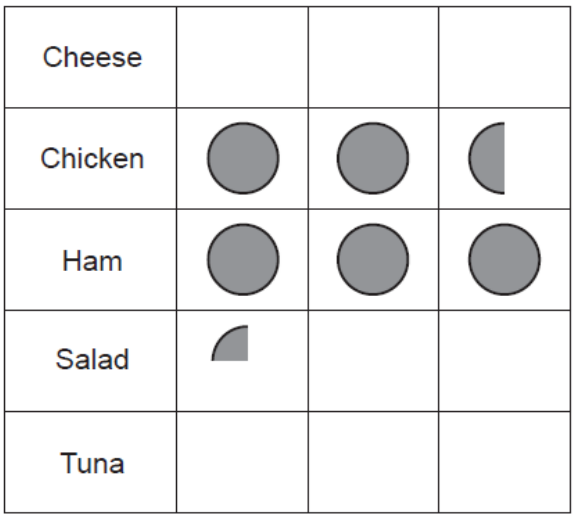
(c) Comment on how mobile phone ownership seems to have changed between 2000 and 2018. [1]

Question taken from Eduqas examination paper 530001, November 2022

#8

A teacher asked a group of students to choose their favourite sandwich filling.
The five options were: cheese, chicken, ham, salad or tuna.
Each student chose **one** option.
The table and the pictogram each show some of the results for the five fillings.

Filling	Number of students
Cheese	3
Chicken	
Ham	
Salad	1
Tuna	6



Key: ● represents ..... students

(a) Complete the key, the table and the pictogram. [3]

.....

.....

(b) What is the modal choice of sandwich filling? [1]

.....

Question taken from Eduqas examination paper 530001, November 2023

#9 (a) Twenty-five players in a rugby team voted for their player of the season.

(i) The three nominations for player of the season were Ashton, Jamal and Oliver.

The frequency table shows the tally of the votes from 10 of the players.

Candidate	Tally	Frequency
Ashton	𝍸	
Jamal	𝍸	
Oliver	𝍸	

The remaining 15 votes are shown below.

Ashton	Oliver	Jamal	Oliver
Oliver	Jamal	Oliver	Jamal
Jamal	Oliver	Ashton	Jamal
Oliver	Oliver	Jamal	

Which player won the vote for player of the season?
You must show all your working. [2]

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The player of the season is .....

(ii) What percentage of the 25 students voted for Oliver? [2]

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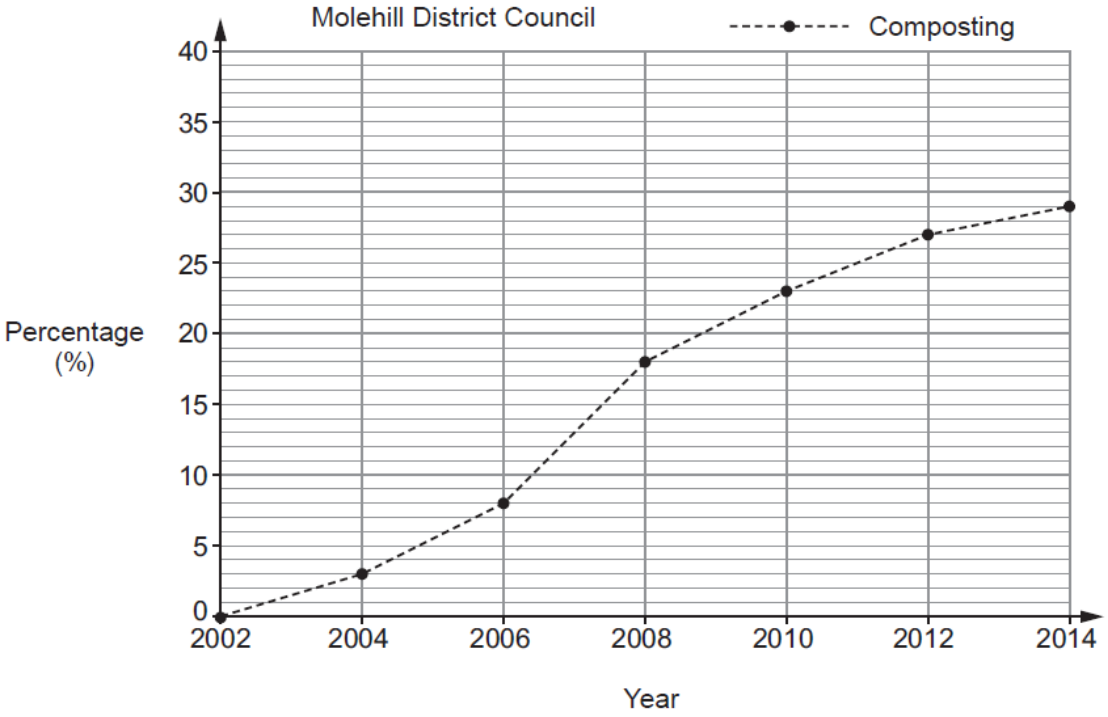
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Question taken from Eduqas examination paper 530001, November 2023

#10

The graph shows information about the percentage of waste **composted** by Molehill District Council from 2002 to 2014.



The table shows information about the percentage of waste **recycled** by Molehill District Council from 2002 to 2014.

Year	2002	2004	2006	2008	2010	2012	2014
Recycling (%)	15	18	32	36	32	30	27

(a) On the grid above, plot the data for recycling. [1]

(b) (i) The mayor of Molehill says,

'One year, the percentage of waste recycled was 6 times the percentage of waste composted.'

Write down the year for which this comment is correct. [1]

.....

(ii) Between which two years did the percentage of waste composted increase the most? [1]

Between ..... and .....

(iii) Using the information provided, write one comment, **comparing** how the percentages of waste recycled **and** composted have changed between 2002 and 2014. [1]

.....

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Question taken from Eduqas examination paper 530001, June 2018

#11 Fifty students in a small school voted for their Head Girl and Head Boy.

(a) The three candidates for Head Girl were Abby, Bea and Cherry.

The frequency table shows the tally of the votes for 30 of the students.

Candidate	Tally	Frequency
Abby	𝍸 𝍸	
Bea	𝍸 III	
Cherry	𝍸 𝍸 II	

The remaining 20 votes are shown below.

Abby	Bea	Abby	Abby	Cherry
Bea	Abby	Bea	Cherry	Abby
Cherry	Abby	Bea	Abby	Cherry
Bea	Cherry	Abby	Bea	Abby

Which girl won the vote?
You must show all your working. [2]

(b) The frequency table shows the results of voting for the Head Boy.

Candidate	Frequency
Dan	13
Eli	20
Fred	17

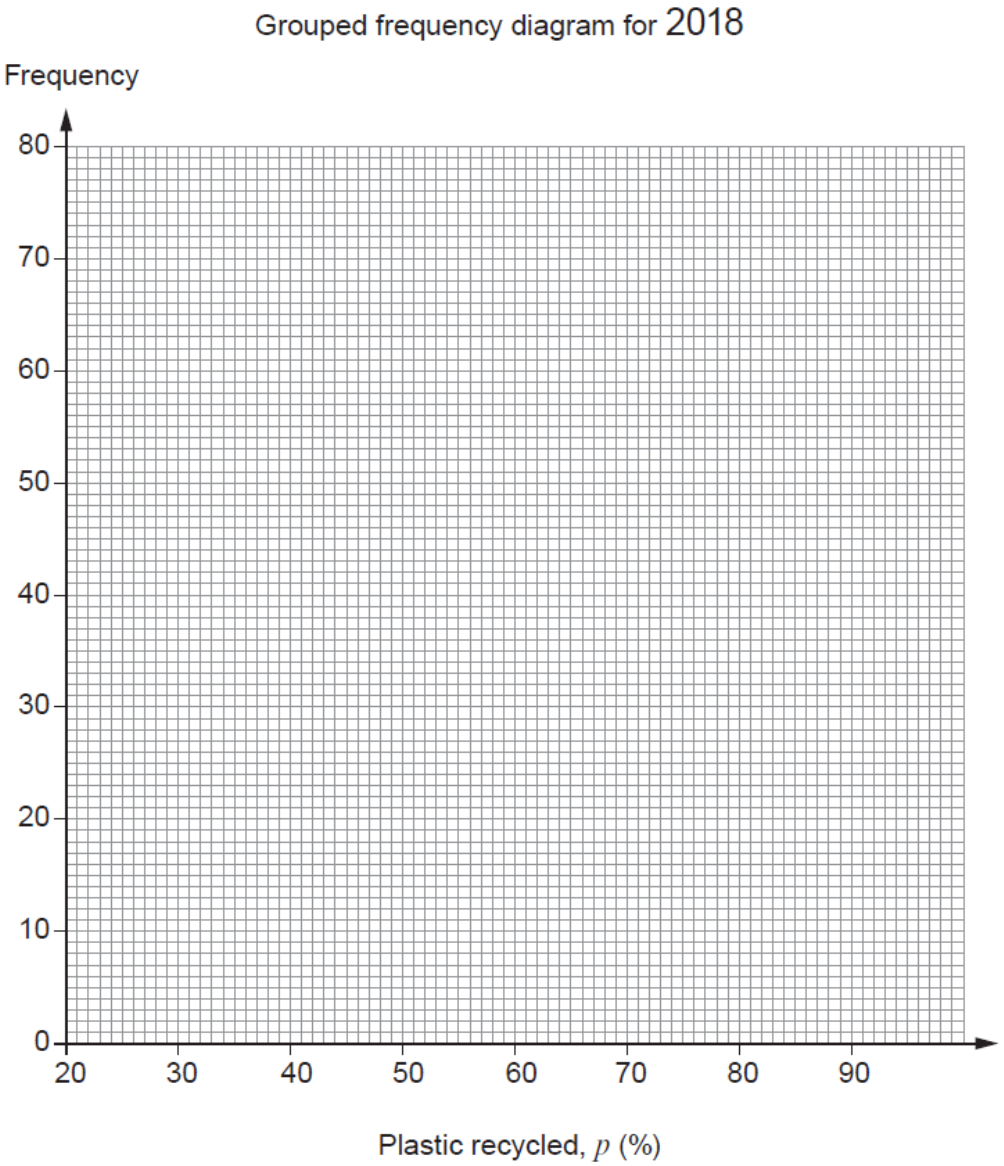
What percentage of the 50 students voted for the winning boy? [2]

Question taken from Eduqas examination paper 530001, November 2020

#12 The grouped frequency table shows information about the percentage of plastic packaging that each of the 235 members of an eco-group recycled in 2018.

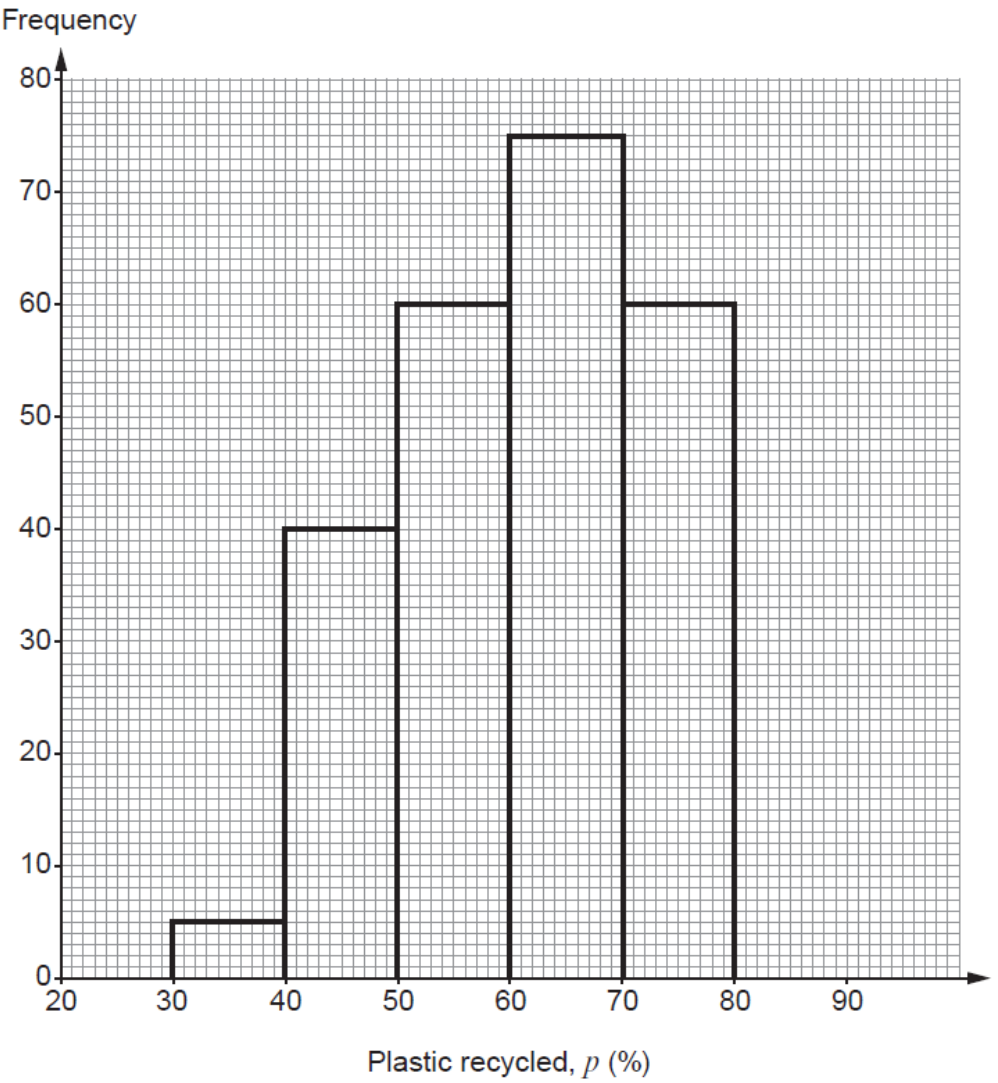
Plastic recycled, p (%)	Frequency
$30 \leq p < 40$	12
$40 \leq p < 50$	65
$50 \leq p < 60$	74
$60 \leq p < 70$	55
$70 \leq p < 80$	29

(a) On the graph paper below, draw a grouped frequency diagram to show this data. [2]



(b) In 2019, the eco-group had more members.
They recorded the percentage of plastic packaging that they each recycled for that year.
The grouped frequency diagram of the results is shown below.

Grouped frequency diagram for 2019



What is the probability that a member of the eco-group recycled at least 70% of their plastic packaging in 2019? [2]

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(c) Use the information provided to write a statement **comparing** the percentage of plastic recycled in these two years. [1]

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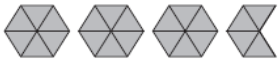
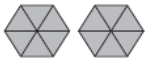
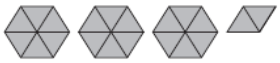
Question taken from Eduqas examination paper 530001, November 2020

#13

Samad asks a group of 120 football fans the following question.

"What type of football matches do you enjoy watching most?"

The pictogram shows his results.

League	
FA Cup	
European Championships	
World Cup	

Key	 represents 12 fans

(a) How many more football fans answered League than answered FA Cup? [1]

(b) A football fan is chosen at random from Samad's group of 120.

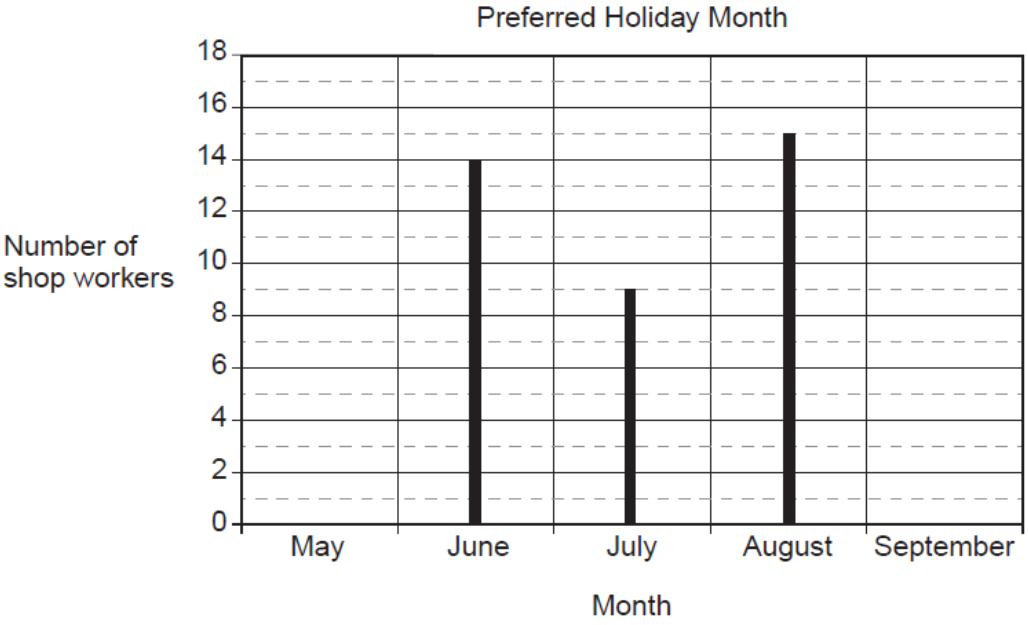
(i) On the probability scale below, mark with an arrow the probability that this football fan answered European Championships. [2]



(ii) Work out the probability that the football fan answered World Cup.
Give your answer as a fraction in its simplest form. [2]

Question taken from Eduqas examination paper 530001, November 2021

#14 Some workers in a large shop were asked to choose the month in which they would like to take a holiday.
Each worker chose a month from May to September.
The vertical line graph and pictogram each show the results for three of the five months.



May	▭	▭	▭	
June	▭	▭	▭	▭
July				
August				
September	▭	▭		

Key: ▭ represents ..... shop workers.

(a) Complete the vertical line graph, pictogram and key. [3]

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.....

(b) How many shop workers were asked? [1]

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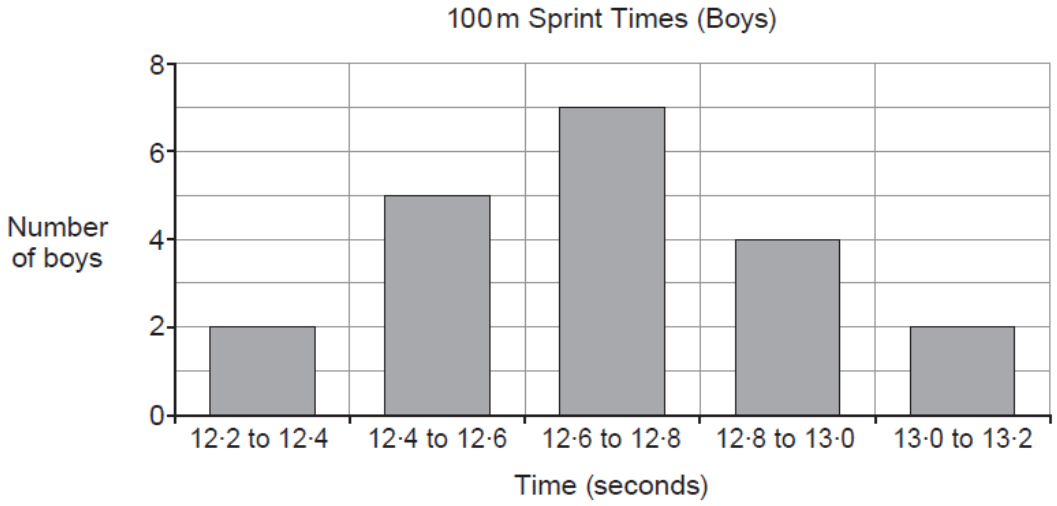
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(c) Write down the modal month. [1]

.....

Question taken from Eduqas examination paper 530001, November 2020

#15 (a) Twenty teenage boys take part in sprint races over 100 metres.
One of the boys draws a graph to summarise their times.



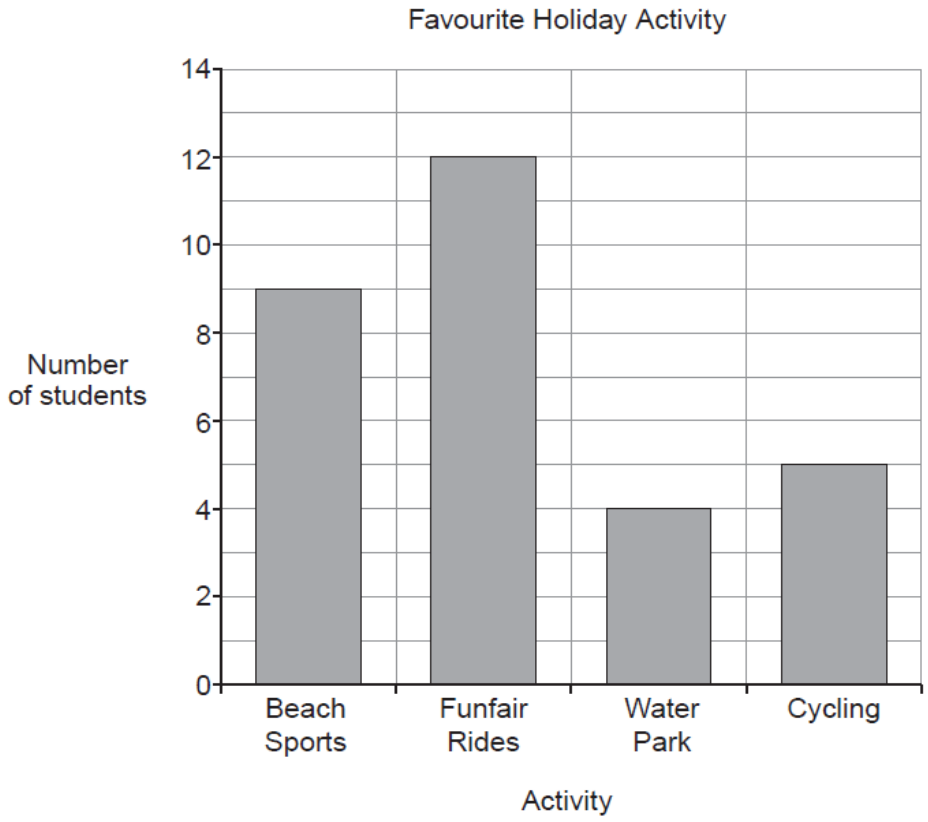
Make one criticism of the diagram. [1]

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.....

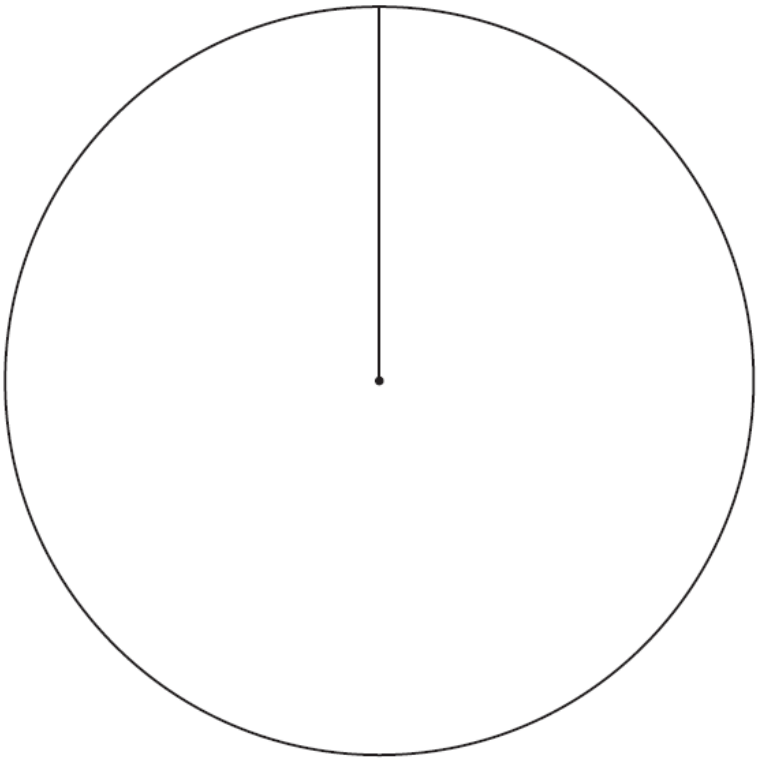
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(b) The bar chart shows the favourite holiday activity of a group of 30 students.



Use the bar chart to complete the pie chart.
You may use the table to help you.
You must show all your working. [5]

Favourite Holiday Activity		
Beach sports (B)		
Funfair rides (F)		
Water park (W)		
Cycling (C)		



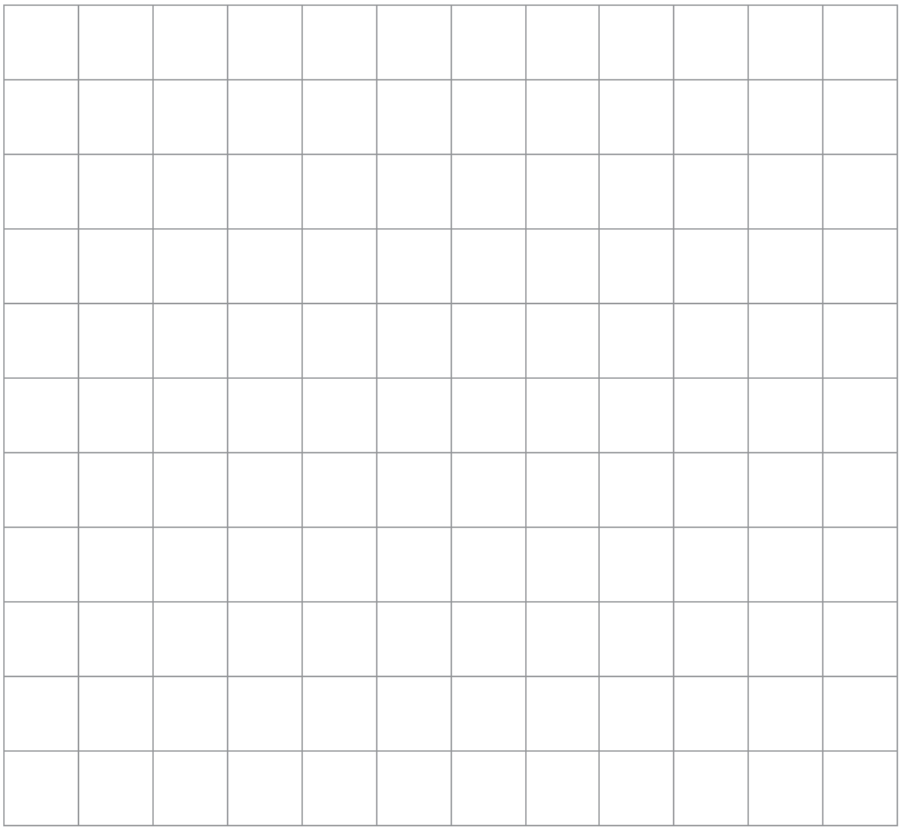
Question taken from Eduqas examination paper 530001, May 2022

#16 *(a)* (i) This table shows the total number of medals won by four countries in the 2012 London Olympic Games.

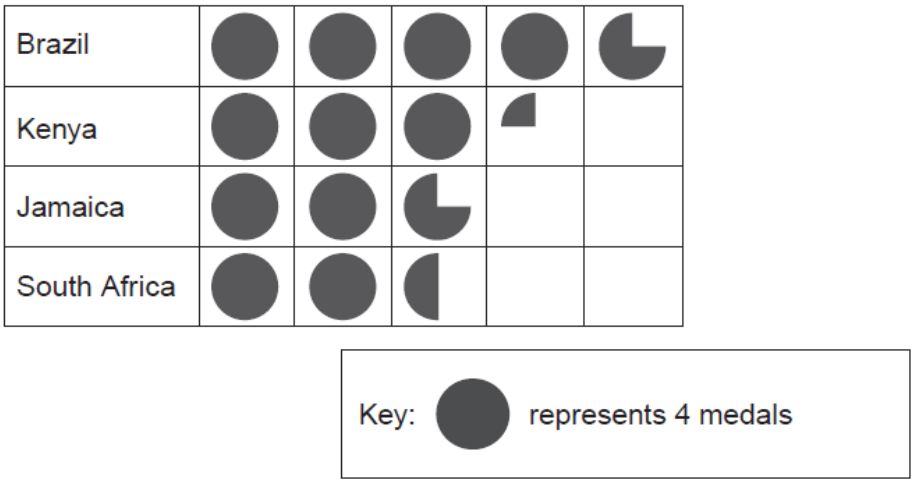
Country	Number of medals
Brazil	17
Kenya	12
Jamaica	12
South Africa	6

Draw a bar chart to show this information. [3]

2012 Olympic Medals Won



(ii) The pictogram shows the total number of medals won by the same four countries in the 2016 Rio Olympic Games.



Use the information given in the table and pictogram to complete the sentences below:

The total number of medals won by Brazil in 2016 is ..... more than they won in 2012.

The total number of medals won by ..... in 2016 is 4 more than they won in 2012. [2]

(b) In 2016, the total of gold, silver and bronze medals won by China was 70.

They won:
- 18 silver medals,
- the same number of gold medals as they did bronze medals.

How many gold medals did China win? [2]

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..... gold medals

Question taken from Eduqas examination paper 530001, June 2019

Constructing and / or Interpreting Tables / Charts / Diagrams: Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	4	
#3	4	
#4	4	
#5	4	
#6	5	
#7	5	
#8	5	
#9	6	
#10	6	
#11	7	
#12	7	
#13	7	
#14	8	

#15	9
#16	7
Total	91

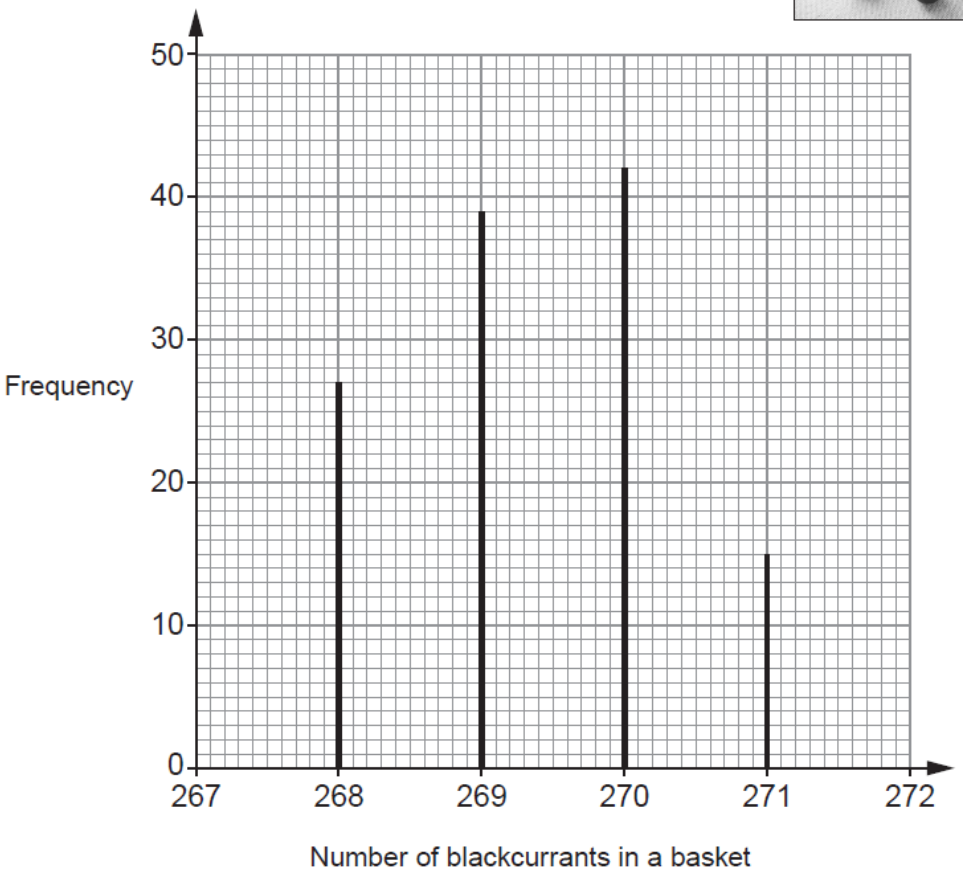
created with
eduqas Part of WJEC Question Bank

#1

Sandy grows fruit to sell from her market stall.



(a) The vertical line graph shows information about the baskets of blackcurrants Sandy sold last week.



(i) How many baskets of blackcurrants did Sandy sell last week? [1]

.....

.....

(ii) What fraction of the baskets of blackcurrants Sandy sold last week contained more than 269 blackcurrants? [2]

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Question taken from Eduqas examination paper 530002, November 2021

#2

The chart below shows distances between some cities in England, using the best routes.
All distances are in miles.

London				
121	Birmingham			
204	89	Manchester		
216	101	34	Liverpool	
211	133	71	102	York

Answer the following questions. Use the information in the chart above.

(a) Write down the distance between Birmingham and Liverpool. [1]

.....

(b) Name the two cities that are 71 miles apart. [1]

..... and .....

(c) One day Dev drives from London to Manchester and then from Manchester to Liverpool.

How much further is this journey than driving directly from London to Liverpool? [2]

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Question taken from Eduqas examination paper 530002, June 2019

#3

The table below gives information from the Highway Code on stopping distances for cars.

Speed	**Stopping distance in metres = Thinking distance + Braking distance** (Thinking distance is given first, followed by Braking distance)
20 mph	6 m | 6 m
30 mph	9 m | 14 m
40 mph	12 m | 24 m
50 mph	15 m | 38 m

Remember 50 mph is 80 km/h.

The stopping distances given in the Highway Code assume good driving conditions and alert drivers.

When a driver is tired and the road is wet, the thinking distance increases by 30% and the braking distance increases by 20%.

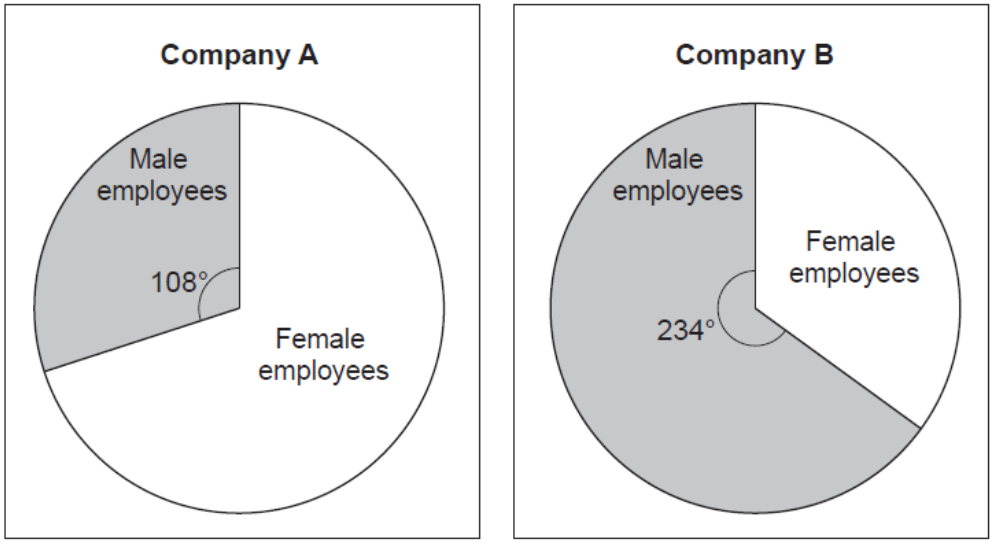
A tired driver travels at 64 km/h in wet driving conditions.

Calculate their stopping distance in metres. [4]

Question taken from Eduqas examination paper 530002, November 2019

#4

Two different companies use pie charts to show the proportion of male and female employees.



(a) Jamie says,

"Company A has more female employees than Company B."

Give a reason why he may be incorrect. [1]

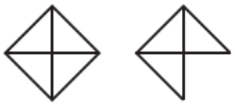
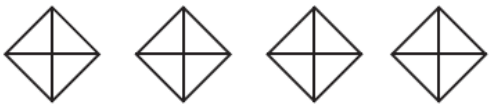
(b) Calculate the difference between the **percentage** of male employees in Company A and the **percentage** of male employees in Company B. [3]

Question taken from Eduqas examination paper 530002, November 2022

#5

Rhys owns a bakery.
He recorded how many cupcakes he sold each day.
The results for the first four days are displayed in the pictogram below.

Key:  represents 12 cupcakes

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

(a) Rhys sold 42 cupcakes on Friday.

(i) Complete the pictogram for Friday. [1]

(ii) How many cupcakes did Rhys sell in total from Monday to Friday? [2]

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.....

..... cupcakes sold in total from Monday to Friday.

(b) On Saturday, Rhys sold 17 cupcakes.

Explain why the key used for the pictogram is not suitable to show this. [1]

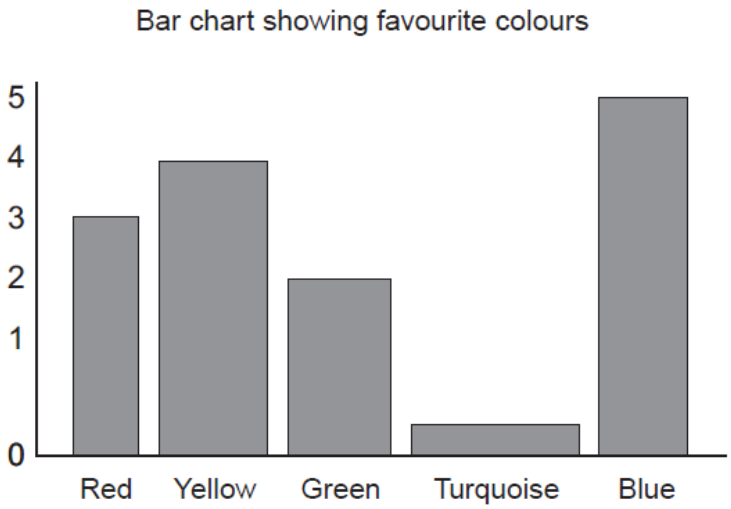
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Question taken from Eduqas examination paper 530002, June 2023

#6

(a) Michael drew the bar chart below to show some children's favourite colours.



Write down two criticisms of this bar chart. [2]

First criticism:

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Second criticism:

.....

.....

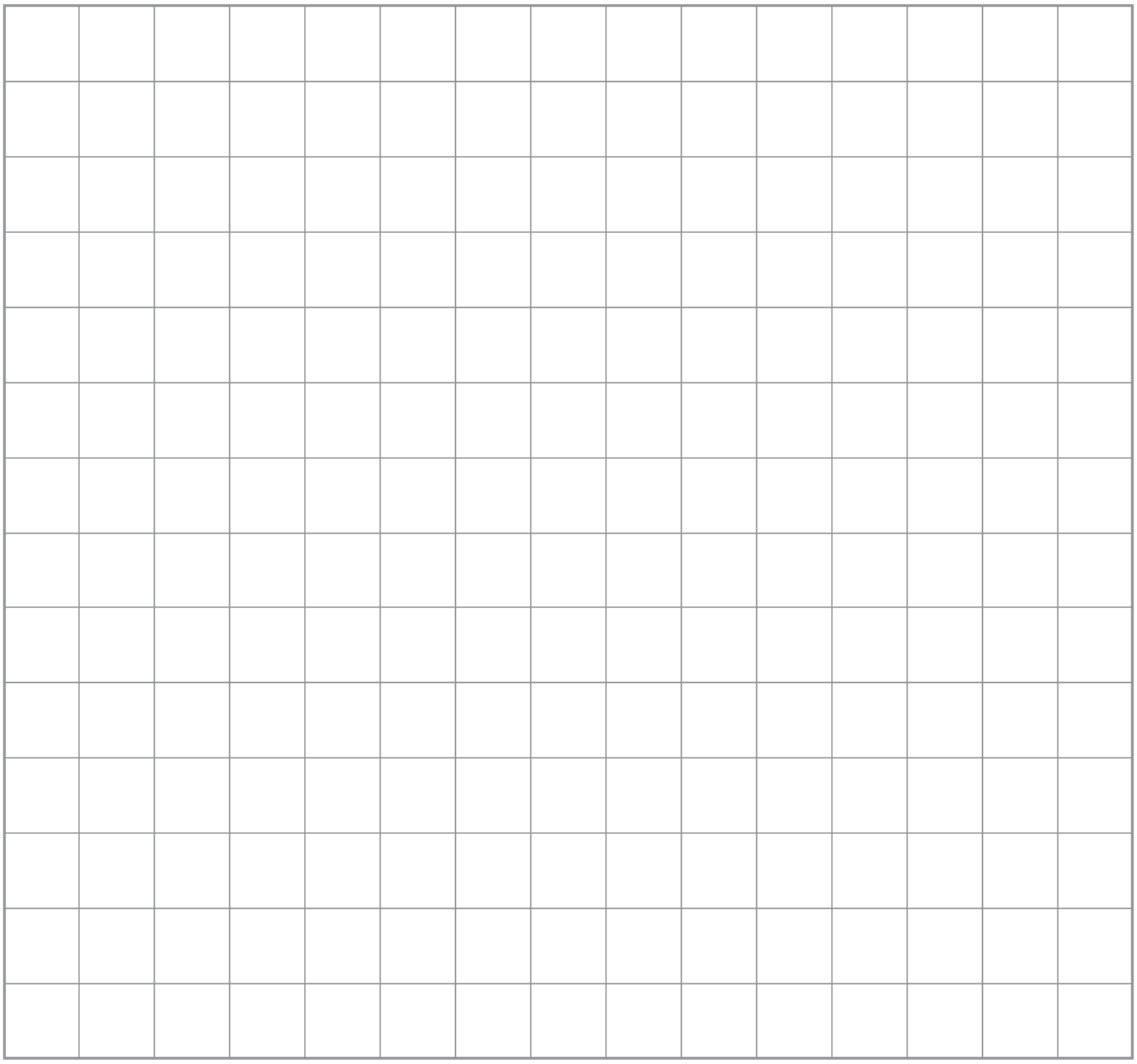
(b) The table below shows the country of birth of all students in Michael's tutor group.

(i) Complete the table. [1]

Country of Birth	Tally	Frequency
Australia	|||	3
UK	.....	12
Latvia	𝍸 |	.....
Poland	𝍸 |||	8

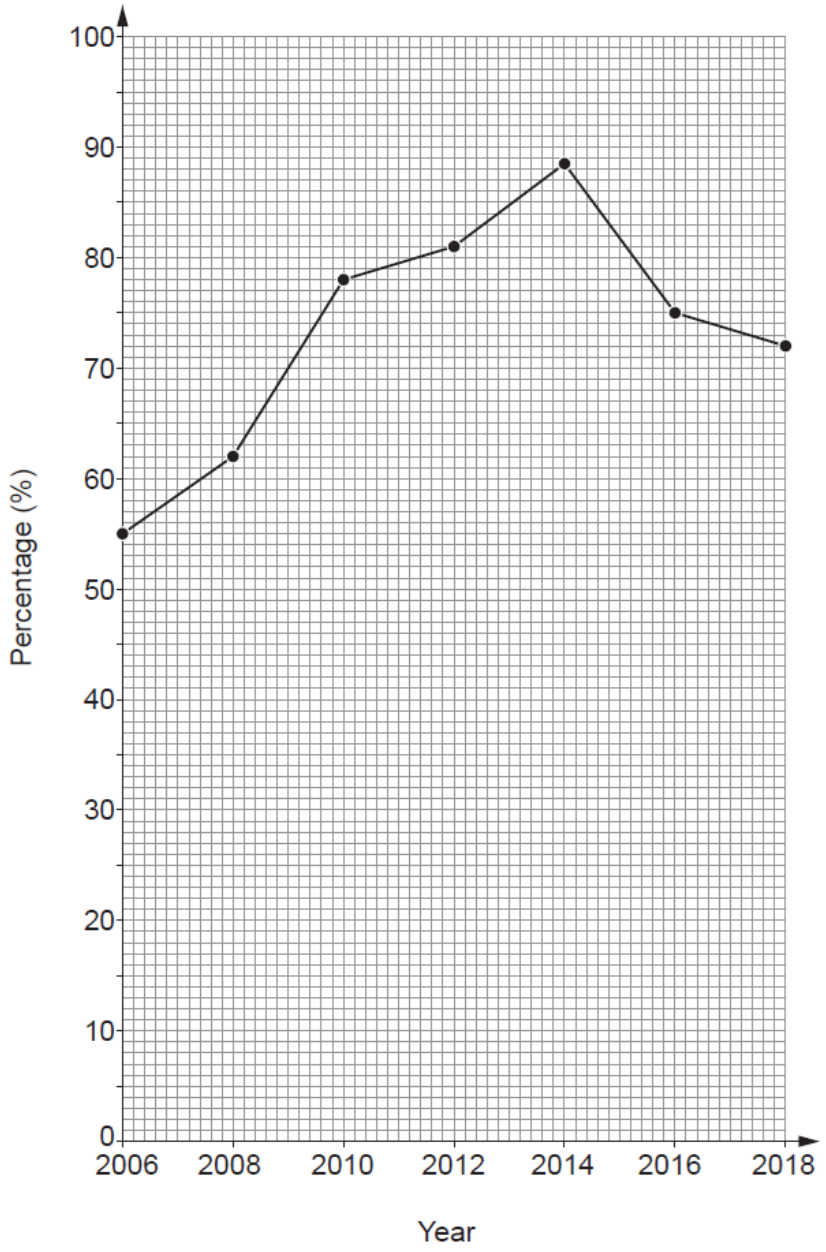
(ii) On the grid below, draw a bar chart to show the information in the table. [2]

Bar chart showing the country of birth



Question taken from Eduqas examination paper 530002, November 2018

#7 The diagram shows information about the percentage of households in Eduvale that owned a **desktop** computer for the even-numbered years from 2006 to 2018.



(a) (i) Complete this statement. [1]

The percentage of households that owned a desktop computer decreased the most between the even-numbered years ..... and ..... .

(ii) Jane says,

"The graph shows that 70% of people owned a desktop computer in 2009 because it passes through that point."

Is Jane correct?

Yes ☐ No ☐

Explain how you decide. [1]

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.....

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(b) The table shows information about the percentage of households in Eduvale that had an internet connection for the even-numbered years from 2006 to 2018.

Year	2006	2008	2010	2012	2014	2016	2018
Internet connection (%)	45	53	66	79	84	88	89

(i) On the diagram on page 24, plot the information for internet connection. [1]

(ii) In which even-numbered year was the difference in the percentage of households in Eduvale owning a desktop computer and the percentage of households having an internet connection the greatest? [1]

.....

(iii) Eduvale is a large town in a county.

Comment on how, in this **county**, the percentage of households owning a desktop computer and the percentage of households having an internet connection are **likely** to have changed in this time period. [1]

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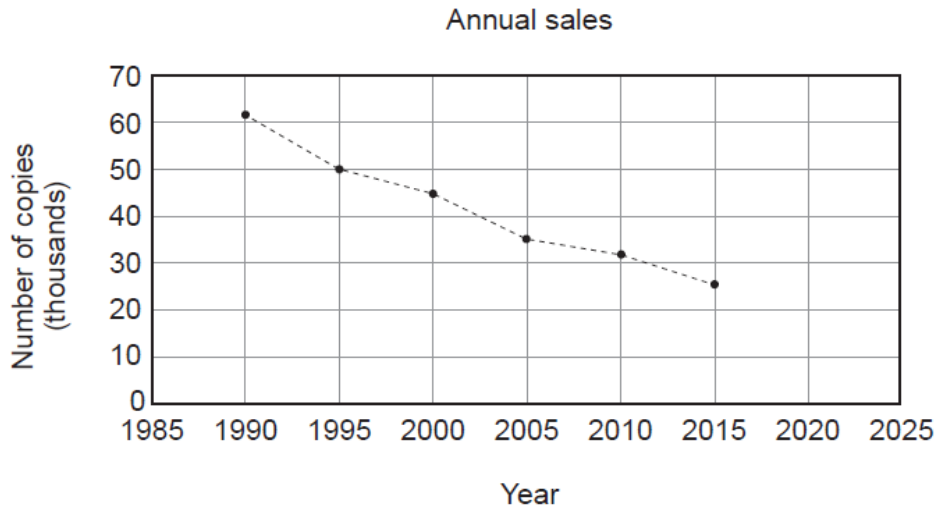
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Question taken from Eduqas examination paper 530002, June 2023

#8

The graph shows the number of copies of a local newspaper sold over a 25-year period.



(a) (i) Eva uses the graph to predict that about 10 thousand newspapers will be sold in 2025.

Explain why her prediction may not be reliable. [1]

.....

.....

(ii) Between 1990 and 2015, sales of the local newspaper fell from 62000 to 26000.

What was the percentage decrease in sales? [2]

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(b) The ratio of adults who read news online to those who do not is 16 : 9.
The adult population of the UK is about 52000000.

Calculate an estimate of the number of adults in the UK who read news online. [2]

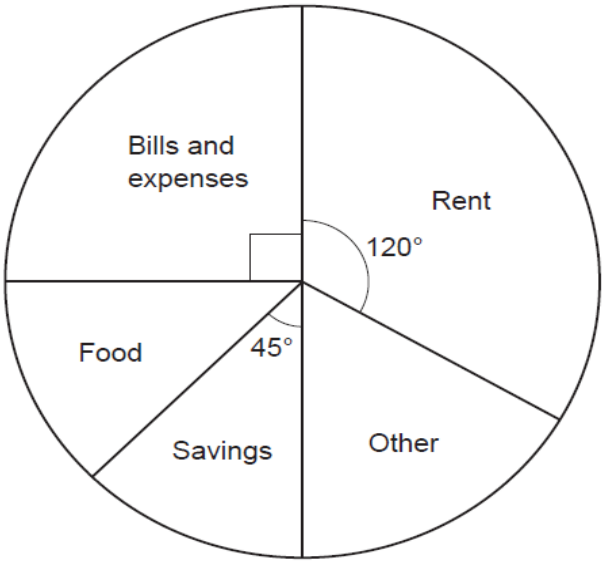
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Question taken from Eduqas examination paper 530002, November 2020

#9 The pie chart below shows information about how Sadia spends her monthly income.



Sadia spends £540 a month on bills and expenses.

(a) What is her monthly income? [2]

(b) How much does Sadia spend on her rent each month? [2]

(c) Pietro saves 15% of his monthly income.

He says,

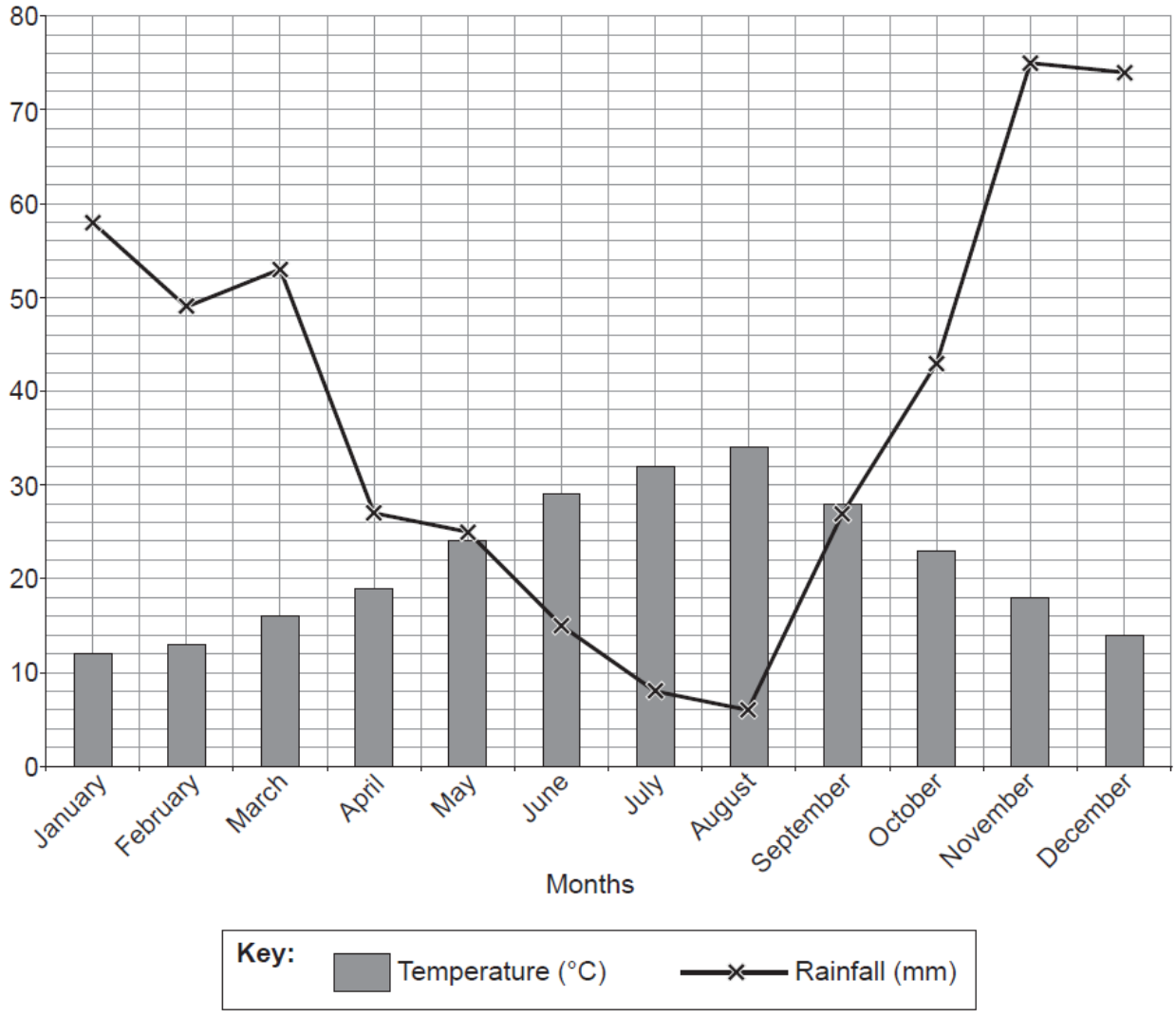
I save a bigger proportion of my monthly income than Sadia.

Give calculations to show Pietro is correct. [2]

Question taken from Eduqas examination paper 530002, November 2024

#10

The graph below shows the average maximum daily temperature (°C) and the average monthly rainfall (mm) in Greece.



(a) (i) Which month has the highest rainfall? [1]

.....

(ii) Calculate the difference in average maximum daily temperature between the warmest month and the coolest month. [2]

.....

(iii) Courtney wants to go on holiday to Greece.
She does not want the average maximum daily temperature to be over 30°C and hopes for as little rain as possible.

Which month would be the most suitable for Courtney to go to Greece? [1]

.....

(b) The formula shown below can be used to convert between temperatures in degrees Fahrenheit (F) and temperatures in degrees Celsius (C).

$$F = 1{\cdot}8C + 32$$

On a particular day in Greece, the temperature was 25°C.
Use the formula to convert this temperature to degrees Fahrenheit (F). [2]

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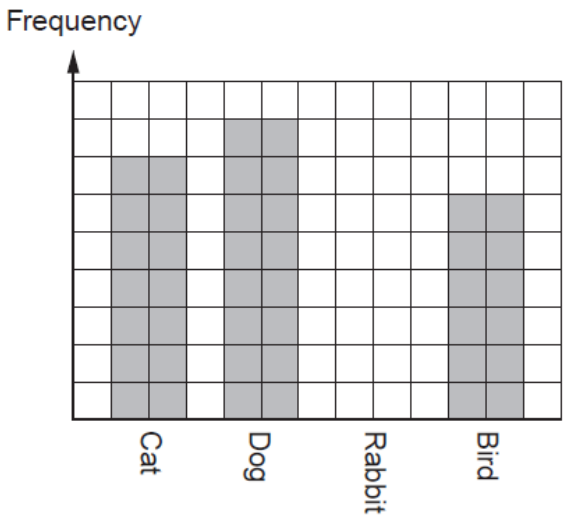
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Question taken from Eduqas examination paper 530002, November 2023

#11

(a) The table and bar chart below show some information about the number of pets seen by a vet on Tuesday.

Type of pet	Frequency
Cat	14
Dog	.....
Rabbit	8
Bird	.....



(i) Using the information above, complete the table and draw the bar for rabbit. [3]

.....

.....

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(ii) Which is the modal type of pet? [1]

.....

(b) The table below shows the number of pets seen by the vet on Wednesday.

Type of pet	Frequency
Cat	10
Dog	17
Rabbit	9
Bird	12
Total	**48**

(i) The vet decides to show this information in a pie chart.

Calculate the angle used to show the cats. [2]

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(ii) A pet is chosen at random from the pets that were seen on Wednesday.

What is the probability that this pet is a dog? [1]

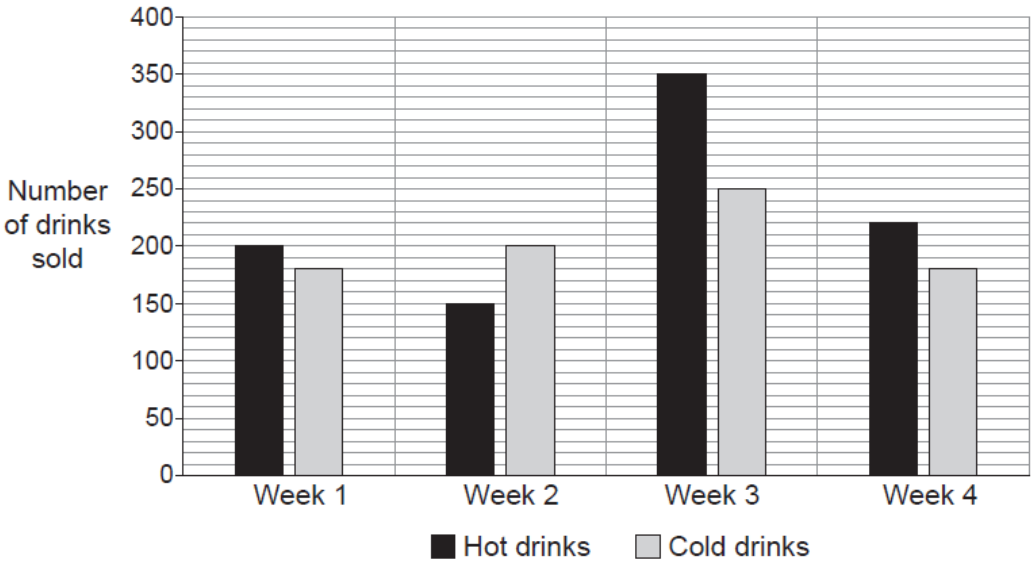
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Question taken from Eduqas examination paper 530002, November 2019

#12

Jenny owns a drinks stand.
The graph below shows the number of hot and cold drinks that she sold over a four-week period.



(a) Each hot drink costs £2.80 and each cold drink costs £1.35.
What was the total income from selling drinks during **week 1**? [2]

.....

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(b) What was the ratio of hot drinks to cold drinks sold during **week 3**? [2]
Give your answer in its simplest form.

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Hot drinks : Cold drinks = ... : .....

(c) What percentage of the drinks sold during **week 4** were cold drinks? [2]

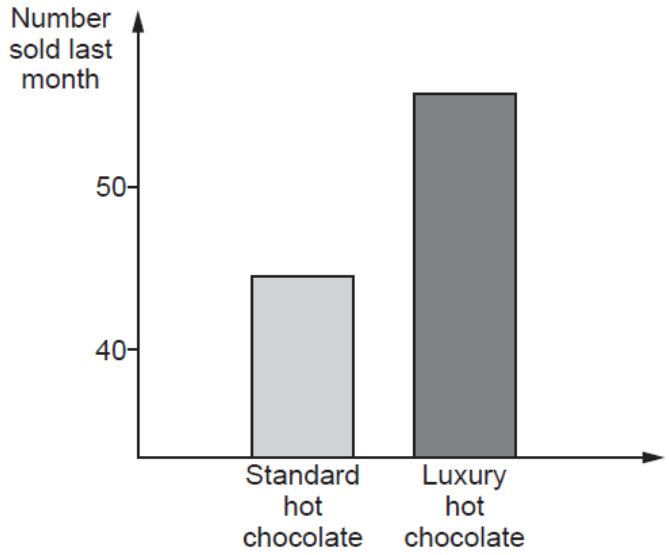
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(d) Jonathan owns a different drinks stand.
He uses an advertisement to promote his luxury hot chocolate drink.
This is shown below.

Luxury hot chocolate drinks are twice as popular as standard hot chocolate drinks.



Explain why the advertisement is misleading. [1]

.....

.....

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Question taken from Eduqas examination paper 530002, November 2024

#13

(a) Jon wants to draw a pie chart to show his leisure activities.

The table shows:
- all his leisure activities for last week,
- the percentage of leisure time he spends on some activities,
- the sizes of some of the angles for the pie chart, (rounded correct to the nearest whole number).

Activity	Percentage	Angle
Friends	28%	101°
Gym	43%	
PC Games		
Football	5%	18°
Other	9%	32°

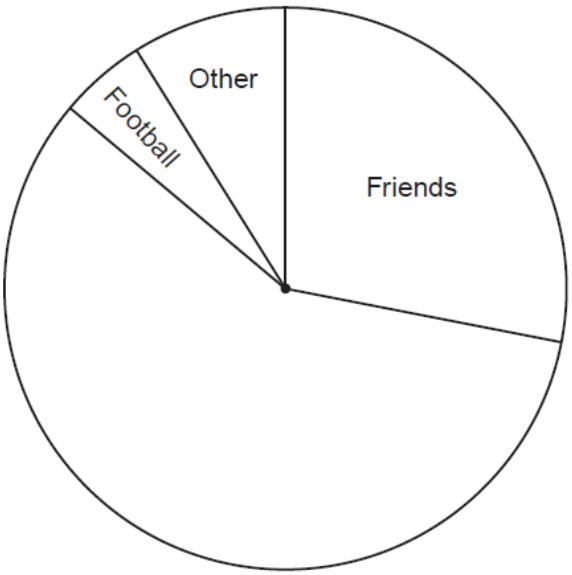
(i) Jon spent 2 hours playing football last week.

Work out the total number of hours he spent on his leisure activities last week. [1]

(ii) Complete the percentage column in the table above. [1]

(iii) Complete the angle column in the table above. [2]

(iv) Complete the pie chart to show the information in the table. [1]



(b) Ricky draws a pie chart to show his leisure activities for the same week.



Last week, Ricky spent 6 hours playing golf.

Who spent more hours last week on leisure activities?

Jon ☐ Ricky ☐

Show how you decide. [2]

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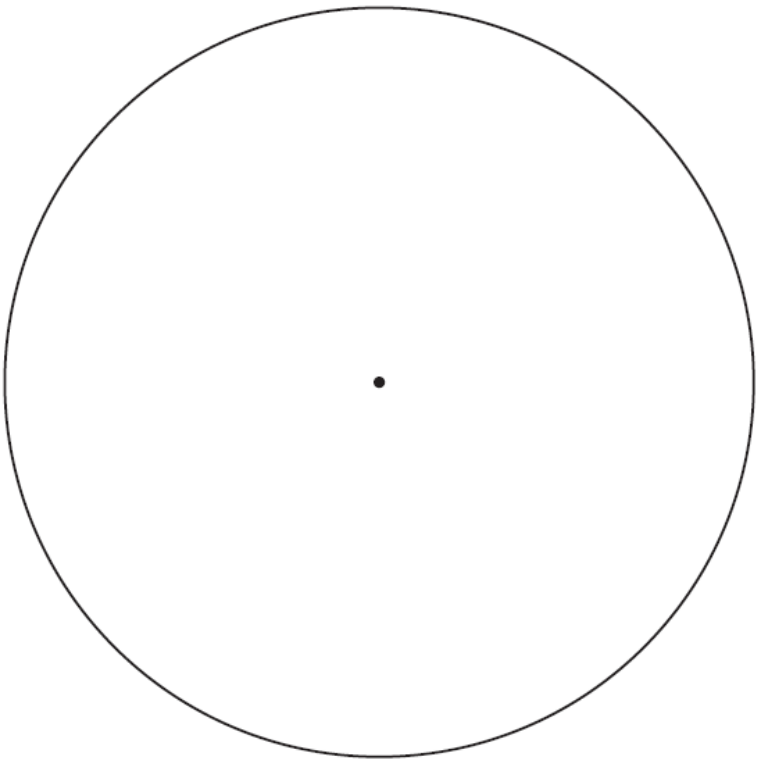
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Question taken from Eduqas examination paper 530002, November 2021

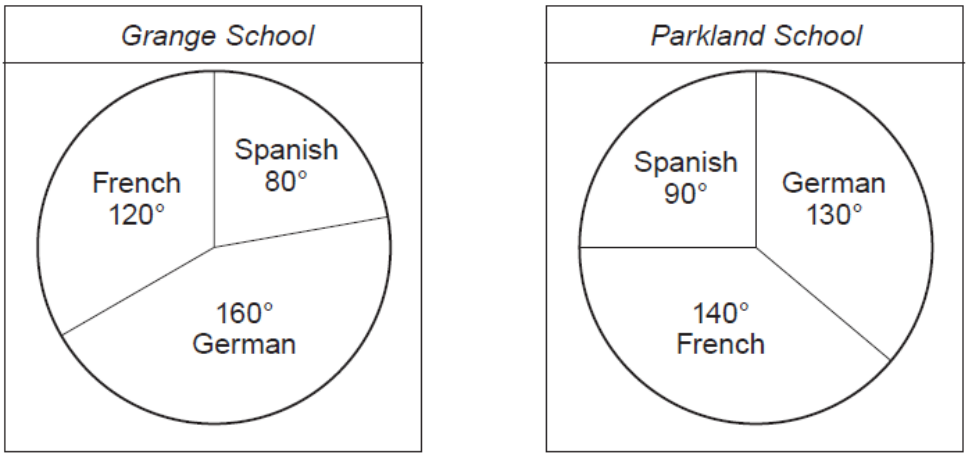
#14 *(a)* The number of students in each year of a school is shown in the table below.

Year group	Number of students	Angle
Year 7	90	
Year 8	120	
Year 9	135	
Year 10	150	
Year 11	105	

Complete the table and draw a pie chart to display this information. [4]



(b) Two schools, *Grange School* and *Parkland School* each produce information leaflets.
The pie charts below are from the different information leaflets.
They show the proportions of students who study French, German and Spanish at these schools.



(i) Is it true that twice as many students at *Grange School* study German than study Spanish?

Yes ☐ No ☐ Cannot tell ☐

Give a reason for your answer. [1]

.....

.....

(ii) Is it true that more students study French at *Parkland School* than at *Grange School*?

Yes ☐ No ☐ Cannot tell ☐

Give a reason for your answer. [1]

.....

.....

(iii) At *Grange School*, 48 students study Spanish.
Calculate the number of students who study French at *Grange School*. [2]

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Question taken from Eduqas examination paper 530002, June 2018

#15 The table shows the prices of 1st class and 2nd class stamps for some years between 2006 and 2016.

Year	1st Class	2nd Class
2006	32p	23p
2010	41p	32p
2011	46p	36p
2012	60p	50p
2015	63p	54p
2016	64p	55p

(a) In which year was the price of a 1st class stamp double the price of a 1st class stamp in 2006? [1]

.....

(b) Write the ratio of the price of a 1st class stamp to the price of a 2nd class stamp in 2015. Simplify the ratio as far as possible. [2]

.....

.....

Ratio is ..... : .....

(c) In 2010, an accountant sent 2 500 letters using 1st class stamps.
In 2015, the accountant sent 2 150 letters using 2nd class stamps.

In which year did the accountant spend more money on stamps, and by how much?
Give your answer in pounds (£). [4]

.....

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(d) Jenny looked at the table of prices of stamps and said,

"In 2012, the price of a 1st class stamp is 20% more than the price of a 2nd class stamp".

Show that Jenny is correct. [2]

.....

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Question taken from Eduqas examination paper 530002, June 2018

#16

(a) Two taxi drivers record the number of miles they each drive on 12 days.
The results are shown in the table below.

Miles driven								
Barry					Samira			
160	171	171	175		161	172	174	174
177	182	188	189		180	181	185	186
190	191	193	208		192	192	196	203

(i) Use the data to complete this table. [2]

	Barry	Samira
Range	48	
Median		183

.....

.....

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(ii) Which taxi driver drove a more consistent number of miles each day?
Give a reason for your answer. [1]

.....

.....

(b) Tanya is also a taxi driver.
Last month she drove 3405 miles.

She says,

"That means that I drive over 40000 miles in a year!"

(i) Show how Tanya could be correct. [2]

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.....

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(ii) State **one** assumption Tanya has made.
Explain how this has affected the answer. [2]

Assumption: .....

.....

.....

Explanation: .....

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.....

Question taken from Eduqas examination paper 530002, November 2020

Interpreting Timetables: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	3	
#3	5	
Total	11	

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#1

The timetable shows some train times from Newport to Barry Island.

Newport (South Wales)	dep.	10:00		10:32		10:40		11:01		11:32		12:00	
Cardiff Central	arr.	10:18	C	10:46	C	10:56	C	11:15	C	11:46	C	12:18	C
Cardiff Central	dep.		10:25		10:55		11:10		11:25		11:55		12:25
Barry Island	arr.		10:55		11:25		11:40		11:55		12:25		12:55

Key: C Change train.

(a) Ade wants to arrive in Barry Island by 12 noon.

What is the time of the latest train he can take from Newport? [1]

(b) Sanjeet takes the 10:32 train from Newport.

How long does it take Sanjeet to get from Newport to Barry Island? [2]

..... minutes.

Question taken from Eduqas examination paper 530001, June 2018

#2

The timetable shows some bus times from Newland to Broadacre.

Service	X1	X1	X1	X1	X1
Newland bus station	08:10	09:10	10:15	11:15	12:15
St Mary's hospital	08:17	09:17	10:22	11:22	12:22
Highview castle	08:40	09:40	10:45	11:45	12:45
Whiteview shopping centre	09:09	10:09	11:14	12:14	13:14
Broadacre bus station	09:34	10:34	11:39	12:39	13:39

(a) Sid is meeting his friend at Whiteview shopping centre at 1:30 p.m.

What is the time of the latest bus he can take from Newland bus station? [1]

(b) Pam takes the 08:40 bus from **Highview castle** to Broadacre bus station. The bus leaves Highview castle on time, but arrives at Broadacre bus station 15 minutes late.

How many minutes does Pam's journey take? [2]

..... minutes

Question taken from Eduqas examination paper 530001, November 2020

#3

Here is part of a train timetable between London Paddington and Bristol Parkway.

London Paddington	18:01	18:18	18:43	19:18	19:48	20:01
Reading		18:43	19:10	19:43	20:13	
Swindon		19:10	19:37	20:10	20:40	
Bristol Temple Meads	19:30					21:34
Bristol Parkway	19:46	19:51	19:59	20:31	21:01	21:56

(a) Darren catches the 19:48 train from London Paddington to Bristol Parkway.
How many **minutes** should his train journey take? [2]

(b) Jennifer lives in London.
She went to an event in Swindon.

Jennifer left her house at 6:10 p.m.
It took her 10 minutes to get to London Paddington station.
She then took the next train to Swindon.
This train arrived in Swindon on time.
It then took her 12 minutes to get to the event.

The event started at 7:45 p.m.
How many minutes late did Jennifer arrive at the event?
You must show your working. [3]

Jennifer arrived ..... minutes late

Question taken from Eduqas examination paper 530001, May 2024

Averages and Range: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
#2	3	
#3	3	
#4	4	
#5	4	
#6	8	
Total	24	

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#1

(a) There are five children in the Cooke family.
Two of the children are the same age, the other children are different ages.

The range of their ages is 5 years.
The mode of their ages is 14 years.
The youngest child is 12 years old.

Find one possible solution for the ages of the other four children. [2]

The ages could be 12, ... , ... , ... , ...

Question taken from Eduqas examination paper 530001, May 2022

#2

Write down five positive whole numbers in the boxes below such that the numbers have:

- a range of 5 **and**
- a mean of 4 **and**
- a median of 3. [3]

#3

Twelve members of a running club take part in three runs.

(a) The table shows the times taken, in hours, by the 12 runners to complete the first run.

1·2	0·9	2·5	1·3	2·1	2·6
1·8	2·0	2·1	2·1	1·5	2·2

(i) Find the mode of the times. [1]

.....

.....

(ii) Find the range of the times. [1]

.....

.....

.....

(iii) A runner was chosen at random from those who took part in the first run.

Find the probability that this runner took at most 1·5 hours. [1]

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Question taken from Eduqas examination paper 530001, June 2019

#4 A farmer grows three types of cucumber: Carmen, Green Knight and Marketmore.

(a) The mean and range of the lengths of the Carmen and Green Knight cucumbers grown by the farmer are given in the table.

	Carmen	Green Knight
Mean	21 cm	18 cm
Range	3 cm	5 cm

He sells the type of cucumber that has the most consistent length to a local cafe and sells the other variety in his farm shop.

Which variety is sold to the local cafe?

Carmen ☐ Green Knight ☐

Explain how you decide. [1]

.....

.....

.....

(b) The farmer picks a sample of 5 Marketmore cucumbers and measures their length.

The lengths of the first 4 cucumbers, in cm, are

15 12 13 13

The mean length of the 5 cucumbers is 13 cm.

What is the length of the 5th Marketmore cucumber? [3]

.....

.....

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..... cm

Question taken from Eduqas examination paper 530001, November 2018

#5

One summer, Shaun grew runner beans.



Each week he recorded, in kilograms, the total mass of the runner beans he picked.

The results for the first 4 weeks are given below.

3·6 3·4 2·9 5·1

For the first 5 weeks, the mean mass of the runner beans Shaun picked was 4·2 kg per week.

How many kilograms of runner beans did Shaun pick in week 5?
You must show all your working. [4]

Week 5 = ... kg

Question taken from Eduqas examination paper 530001, November 2022

#6 *(a)* The table shows the number of road closures in Hayshire during 6 months of 2018.

March	April	May	June	July	August
14	15	22	21	12	18

For these six months, calculate each of the following.

(i) The range of the number of road closures. [1]

Range .....

(ii) The mean number of road closures per month. [3]

Mean .....

(b) The table shows the populations of some places in Hayshire at the end of 2018.

Place	Population
Tanham	12212
Copley	4658
Pinestow	619
Elmvale	3600

(i) Write the populations in order of size.
Start with the smallest. [1]

..... , ... , ... , ...
Smallest

(ii) The population of Elmvale is predicted to be 4700 by the end of 2019.

To work out the number of houses to build for the extra people, the builders use the rule:

Build one house for every 4 extra people.

How many houses should they build? [3]

..... houses

Question taken from Eduqas examination paper 530001, November 2019

Averages and Range: Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
#2	5	
#3	5	
#4	6	
#5	7	
Total	25	

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#1

Gary measures the depth of a river in 6 places between two bridges.
The depths are as follows:

48·8 cm 55·1 cm 34·6 cm 75·2 cm 85·7 cm 96·1 cm

Gary decides to write each of the 6 depths correct to the nearest 10 cm.
He states that the median depth of the river between the two bridges is 70 cm.

Give two reasons why the method Gary used to obtain this median depth leads to an inaccurate result. [2]

Reason 1:

.....

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Reason 2:

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Question taken from Eduqas examination paper 530002, November 2018

#2 Shazad has six numbered cards.

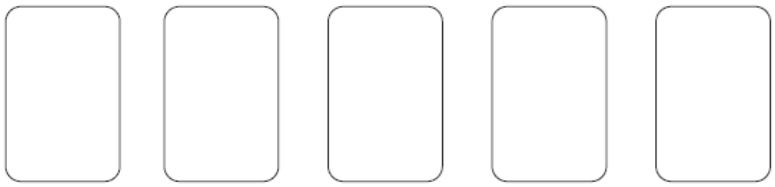


(a) What is the median of the numbers on Shazad's cards? [2]

(b) Liz says,

"I can pick five of Shazad's cards that have a mean of 21."

Which five cards must Liz pick for her statement to be correct?
You must show all your working. [3]



Question taken from Eduqas examination paper 530002, June 2023

#3

Rochelle is training for a marathon.
For each of the last five weeks she has recorded how many miles she has run.



- Rochelle runs a whole number of miles each week.
- Her median is 23 miles.
- Her mode is 29 miles.
- Her range is 8 miles.

How many miles in total has Rochelle run in the last five weeks?
You may use the boxes below to help you. [5]

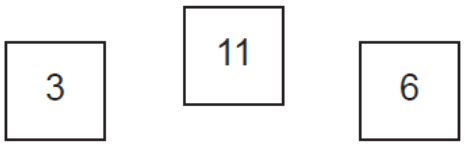
Total number of miles Rochelle has run .....

Question taken from Eduqas examination paper 530002, November 2022

#4

Jeff and Ava have a pack of numbered cards.

(a) Jeff selects the three cards shown below from the pack.



Jeff selects a fourth card.
The median of the numbers on his four cards is 7·5.

What number is on the fourth card? [2]

The number on Jeff's fourth card is ☐

(b) Ava selects three cards from the pack.
The mean of the numbers on these three cards is 8.

Ava selects a fourth card.
The mean of the numbers on her four cards is 9·5.

What number is on the fourth card? [4]

The number on Ava's fourth card is ☐

Question taken from Eduqas examination paper 530002, November 2024

#5

Sandy grows fruit to sell from her market stall.

(b) Sandy sells her raspberries in boxes.
The frequency table shows the numbers of raspberries in 130 boxes.

Number of raspberries	Frequency
45	7
46	24
47	35
48	37
49	18
50	9

(i) Find the range of the number of raspberries in a box. [1]

(ii) Find the median number of raspberries in a box. [2]

(iii) Calculate the mean number of raspberries in a box. [3]

(iv) Sandy says:

"The modal number of raspberries in a box is more than the mean number of raspberries in a box."

Is Sandy correct?

Yes ☐ No ☐

Show how you decide. [1]

Question taken from Eduqas examination paper 530002, November 2021

Properties of Populations from a Sample: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
Total	3	

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#1

Mike wants to find out how many fish there are in his lake.

On Monday evening,
Mike captured a random sample of 100 fish and tagged them.
He then released them back into the water.

On Tuesday evening,
Mike captured a second random sample of 50 fish and counted the number that had been tagged.

He found that 10 of the fish in the second sample had been tagged.

Mike will allow fishing at his lake when there are more than 800 fish.

You may assume that the number of fish in the lake stays the same between the two samples being taken.

Should Mike allow fishing at his lake?
Show calculations to justify your decision. [3]

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Decision: Allow fishing ☐ Do not allow fishing ☐

Question taken from Eduqas examination paper 530001, November 2018

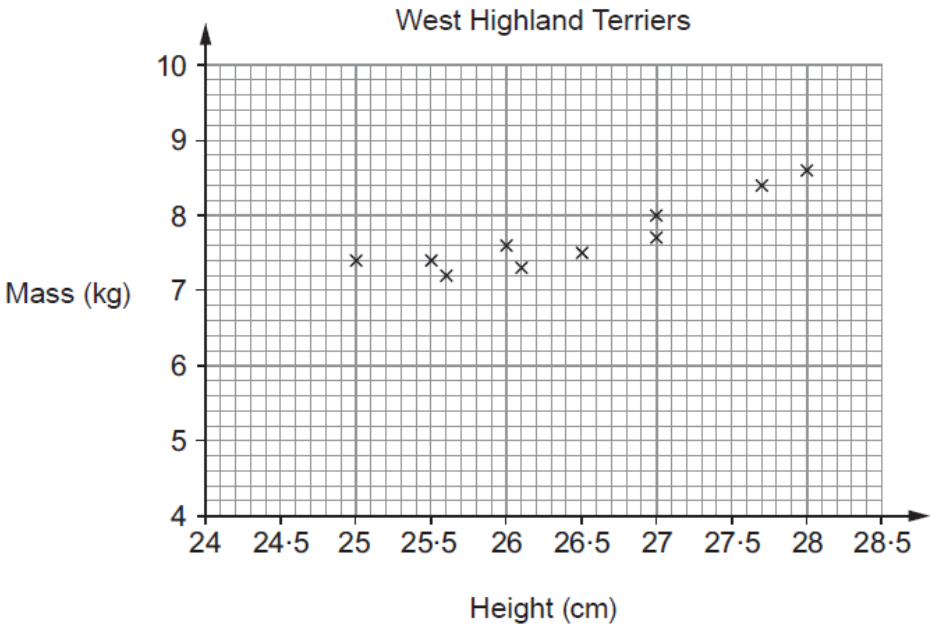
Scatter Diagrams: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	4	
#3	4	
#4	4	
#5	4	
#6	4	
#7	6	
Total	29	

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#1

The scatter diagram shows the height and mass of 10 dogs.
These dogs are all West Highland Terriers.



(a) Draw a line of best fit on the scatter diagram. [1]

(b) Estimate the mass of a West Highland Terrier that has a height of 26·7 cm. [1]

Estimated mass is ..... kg

(c) Another dog has a mass of 8·2 kg and a height of 35 cm.

Is this dog likely to be a West Highland Terrier?

Yes ☐ No ☐

Explain your answer. [1]

.....

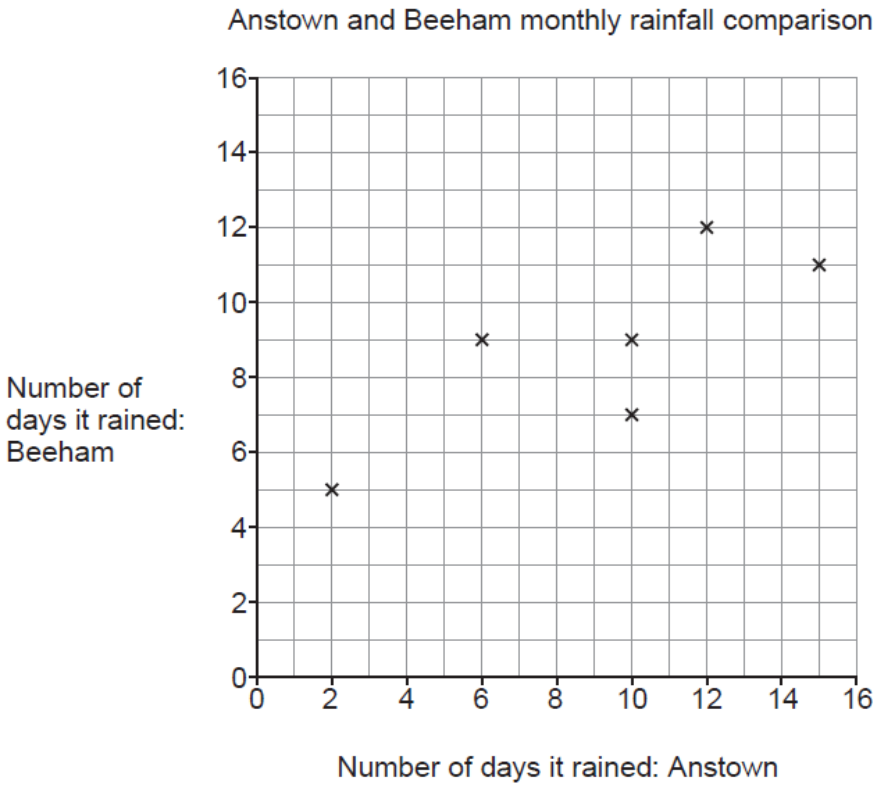
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Question taken from Eduqas examination paper 530001, November 2018

#2

Anisha wants to compare the number of days it rained each month, in Anstown and Beeham, in 2018.

(a) Anisha has plotted the data for the first 6 months on the scatter graph below.



The data for the last 6 months is given in the table.

Number of days it rained: Anstown	4	9	8	13	14	15
Number of days it rained: Beeham	7	9	6	10	12	13

Plot the data for the last 6 months on the scatter graph above. [2]

(b) What does your scatter graph show about the relationship between the number of days it rained in Anstown and the number of days it rained in Beeham? [1]

.....

.....

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(c) Use the scatter graph to find how many months it rained on 11 days or more in **both** Anstown and Beeham? [1]

.....

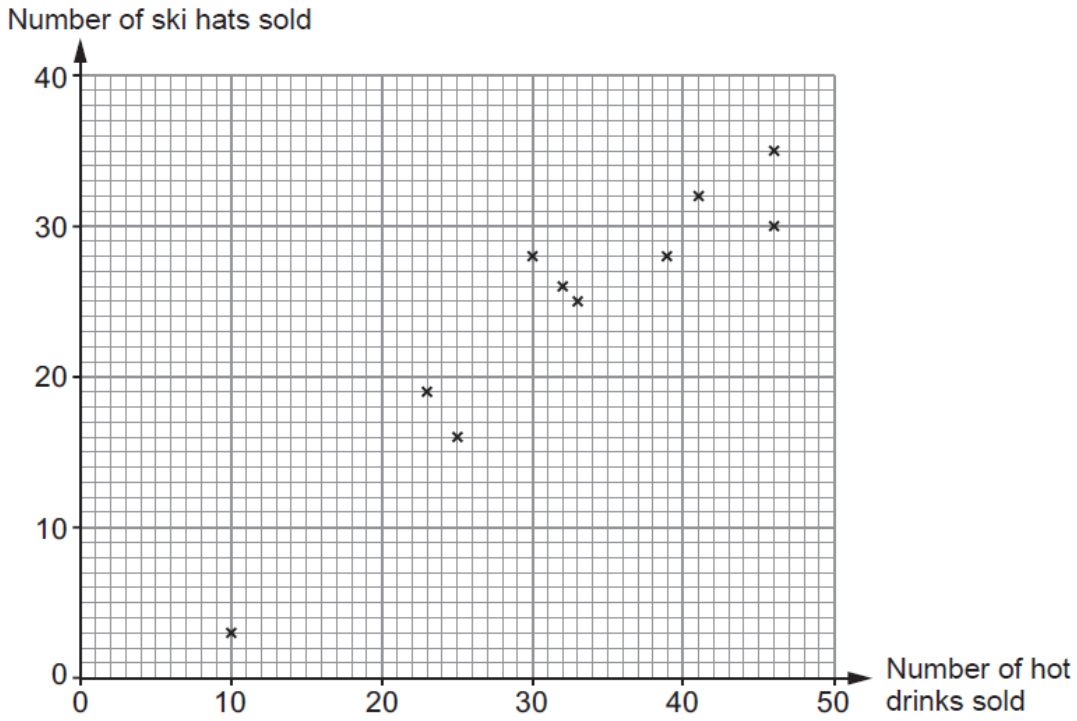
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Question taken from Eduqas examination paper 530001, November 2019

#3 *The Shorts Hut* is a shop that sells sports clothing and has a customer café.

(a) The manager plots some sales data in a scatter graph.

The graph shows the number of hot drinks sold and the number of ski hats sold each day for 10 days.



The manager says that this graph shows that an increase in the sale of hot drinks causes an increase in the sale of ski hats because the correlation is positive.

Explain why the manager is incorrect. [1]

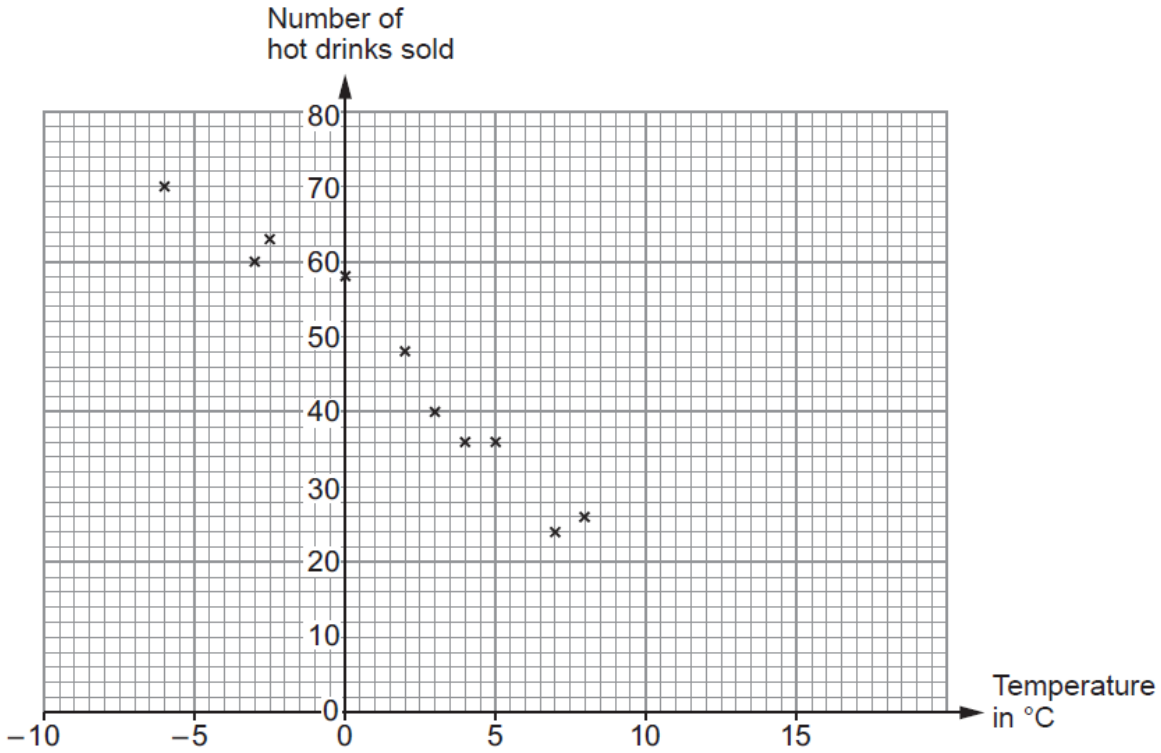
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(b) The manager plots another scatter graph showing the temperature, in °C, at 9 a.m. and the number of hot drinks sold during the first hour on each of 10 days.



(i) Draw a line of best fit on the scatter graph. [1]

(ii) Estimate the number of hot drinks the café will sell when the temperature is 6°C. [1]

.....

(iii) Comment on how suitable the graph is for estimating the number of hot drinks sold when the temperature is more than 17°C.
You must give a reason for your answer. [1]

.....

.....

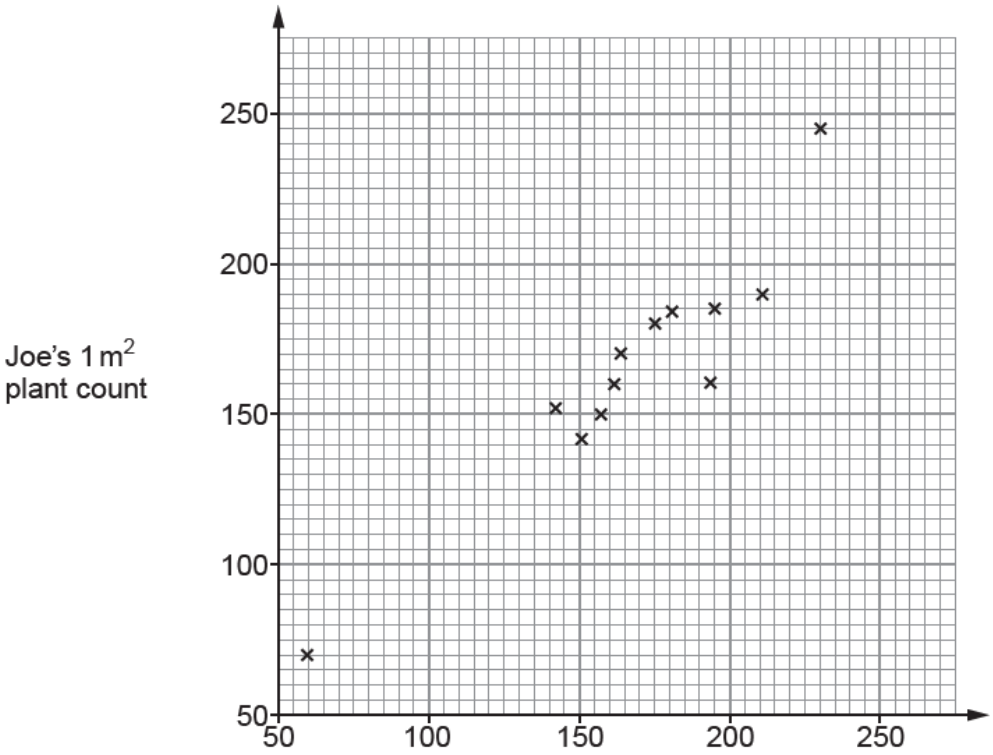
Question taken from Eduqas examination paper 530001, June 2018

#4

A town council has 12 wildflower beds.
Meera and Joe count the number of yellow rattle plants in a **different** 1 m^2 section of each wildflower bed.



Their results are shown in the scatter diagram.



(a) In one of the beds, both Meera and Joe counted many more yellow rattle plants than in the other beds.

Calculate the difference between Joe's plant count and Meera's plant count for this bed. [1]

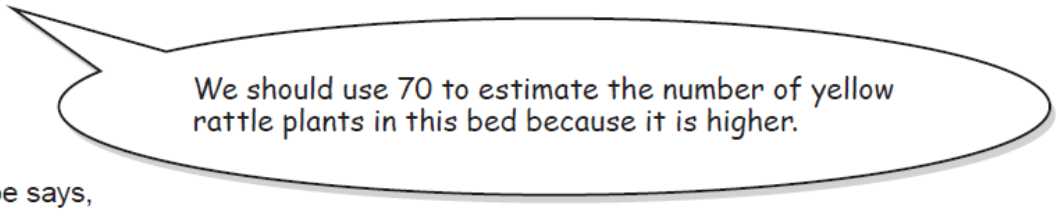
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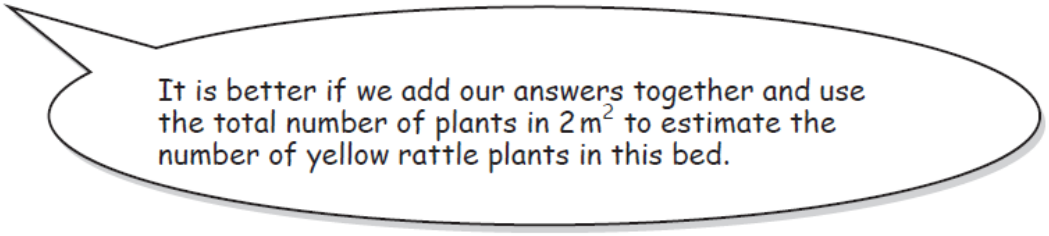
.....

(b) In one wildflower bed, Meera counted 60 yellow rattle plants and Joe counted 70.
They want to use these values to estimate the total number of yellow rattle plants in this bed.

Meera says,



Joe says,



(i) Who is correct?

Meera ☐ Joe ☐

Explain how you decide. [1]

.....

.....

.....

(ii) This wildflower bed has an area of 40 m^2.

Use Joe's method to calculate an estimate of the number of yellow rattle plants in this bed. [2]

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Question taken from Eduqas examination paper 530001, November 2020

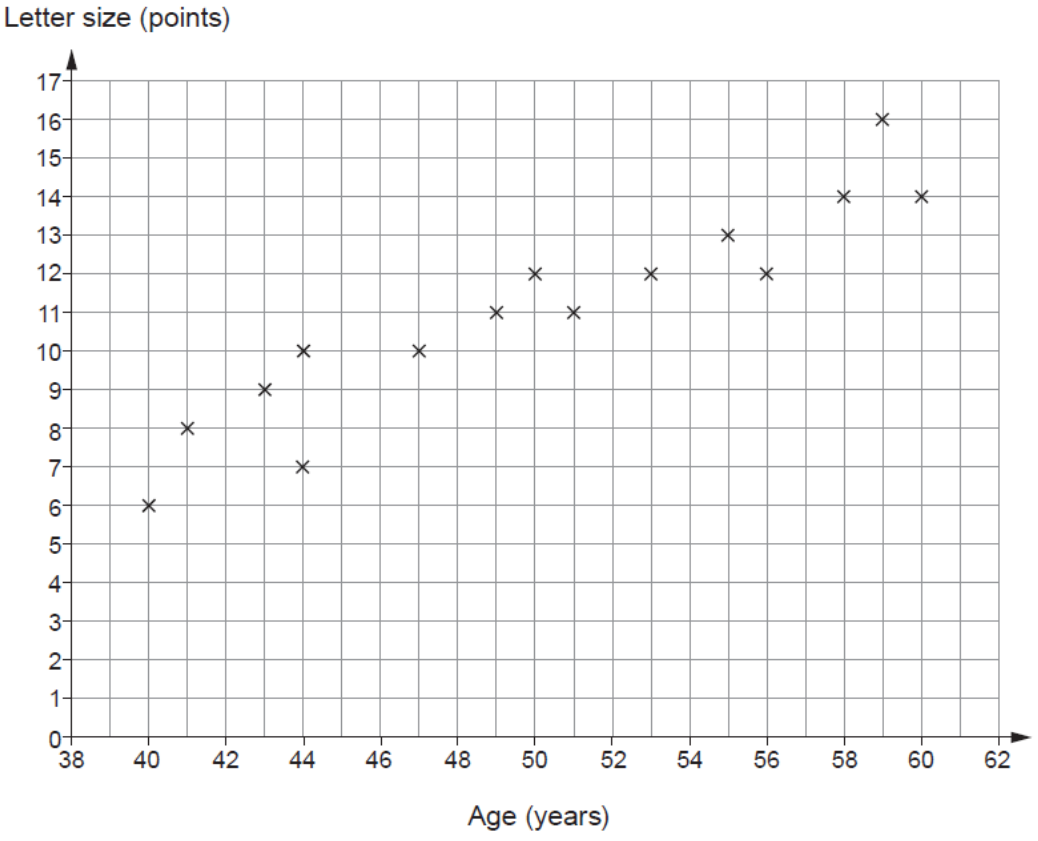
#5

Fifteen people aged between 40 and 60 take an eye test as part of an experiment.

The test involves reading letters from a chart.
Each line of letters is smaller than the line above.
Letter size is measured in points.



The scatter graph below shows the age of and the smallest letter size read by each person.



(a) The mean age is 50 years and the mean letter size is 11 points.

Using this information, draw a line of best fit on the scatter graph. [2]

(b) Use the scatter graph to answer each of the following questions.

(i) Estimate the smallest letter size which can be read by a person aged 52. [1]

.....

(ii) Jared is 30 years old.

Should the scatter graph be used to estimate the smallest letter size that Jared can read?

Yes ☐ No ☐

Give a reason for your answer. [1]

.....

.....

Question taken from Eduqas examination paper 530001, November 2021

#6

David and Asif are studying the size of leaves.

Before measuring the leaves, they agreed on the following conditions:

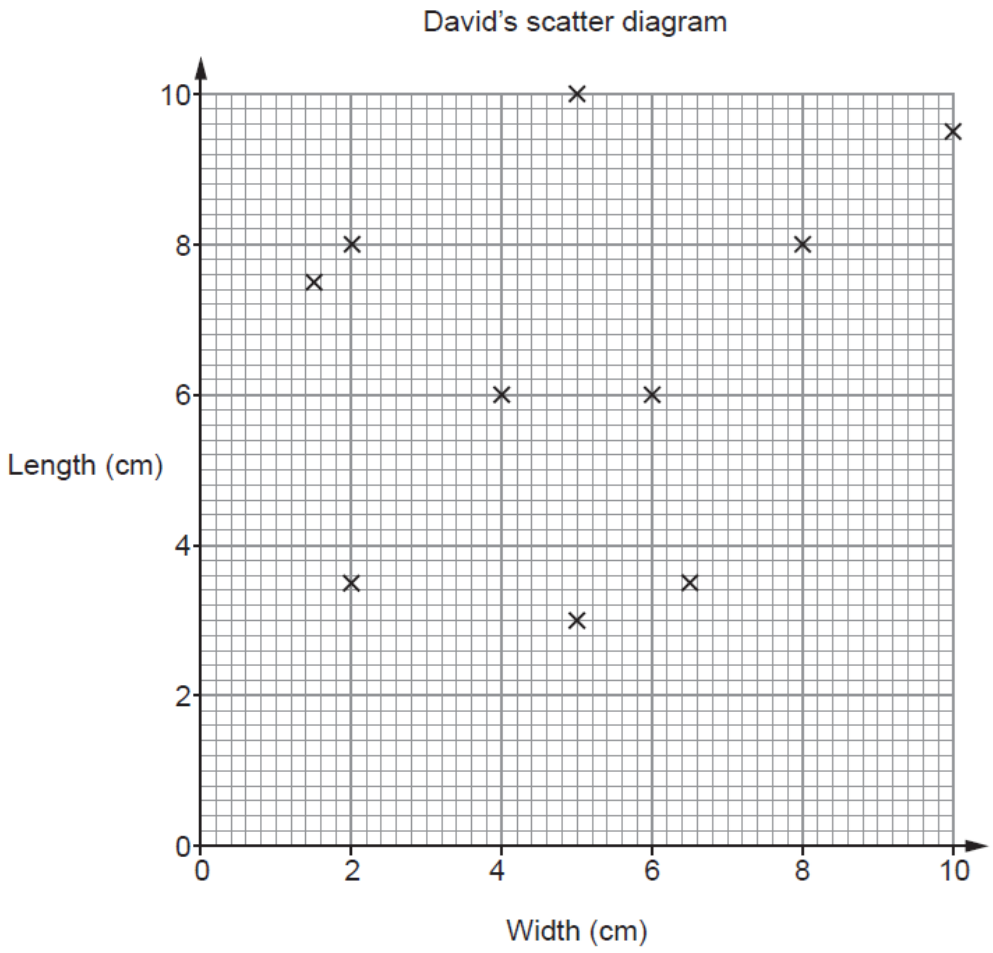
- The length of the leaf does not include the stem.
- The width of the leaf is measured at the widest part of the leaf.

(a) Why do they need to agree on these conditions to measure the leaves? [1]

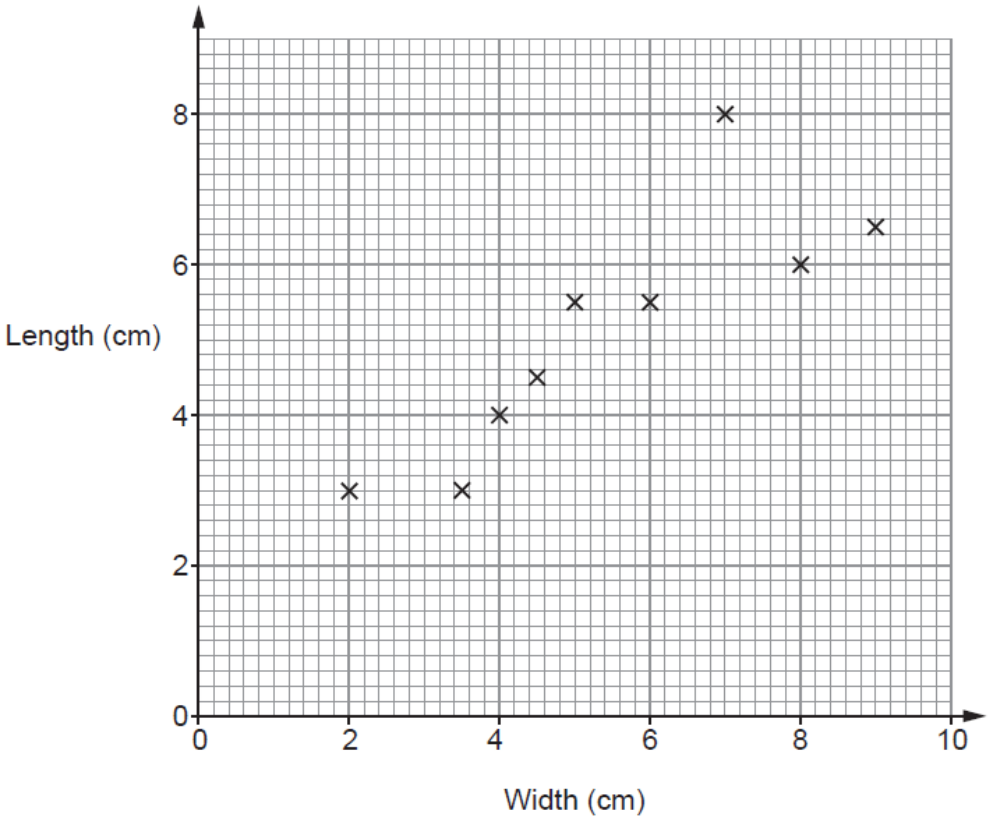
.....

.....

(b) David and Asif have each drawn a scatter diagram to show their results.



Asif's scatter diagram



(i) One of the boys collected all of his leaves from one tree.

Who was this most likely to be?
Give a reason for your answer. [1]

☐ David ☐ Asif

Reason: .....

.....

(ii) Draw a line of best fit on Asif's scatter diagram. [1]

(iii) Asif forgot to include the measurements of one of the leaves on his scatter diagram.
The length of this leaf is 7 cm.

Write down an estimate of the width of this leaf. [1]

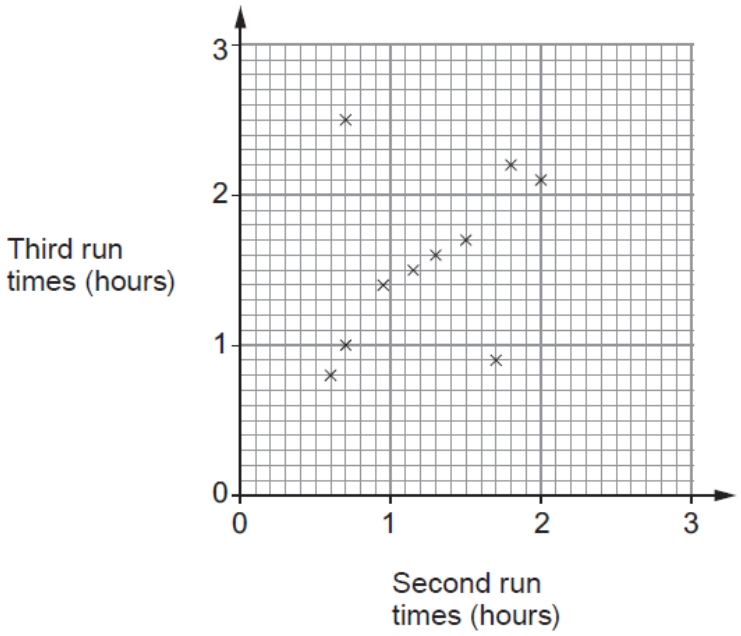
.....

Question taken from Eduqas examination paper 530001, November 2023

#7

Twelve members of a running club take part in three runs.

(b) The scatter diagram shows the times it took 10 of the runners to complete the other two runs.



(i) One of these 10 runners was injured during the third run and walked most of the way.

Circle the plot most likely to represent this runner on the scatter diagram. [1]

(ii) The times, in hours, taken by the remaining 2 runners were:

	Runner 11	Runner 12
Second run	1·8	2·2
Third run	1·9	2·4

Plot these times on the scatter diagram. [2]

(iii) Using the information on the completed scatter diagram, what was the difference between the fastest time for the second run and the fastest time for the third run? Give your answer in minutes. [3]

.....

.....

.....

.....

Time difference = ... minutes

Question taken from Eduqas examination paper 530001, June 2019

Scatter Diagrams: Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
#2	3	
#3	4	
Total	9	

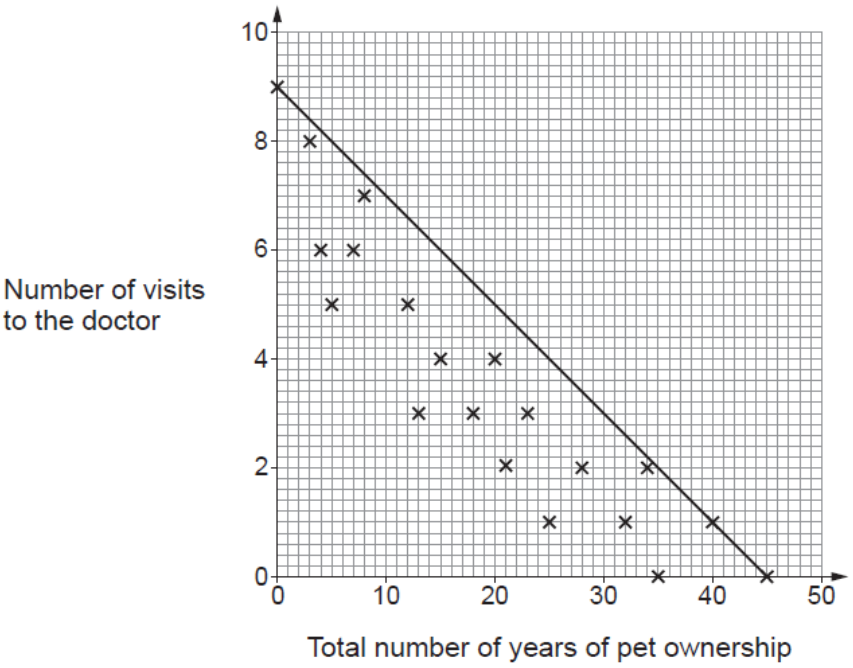
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#1 Debbie collects data about a group of 20 people.

Her data is:

- the total number of years for which they have owned a pet
- the number of visits they have each made to their doctor in the last year.

The scatter graph shows her results and her attempt to draw a line of best fit for the data.



(a) Make a criticism of Debbie's line of best fit. [1]

.....

.....

.....

(b) Debbie says,

Because there is a negative correlation, owning a pet for longer **causes** people to need to visit the doctor less often.

Is Debbie correct?

Yes ☐ No ☐

Explain how you decide. [1]

.....

.....

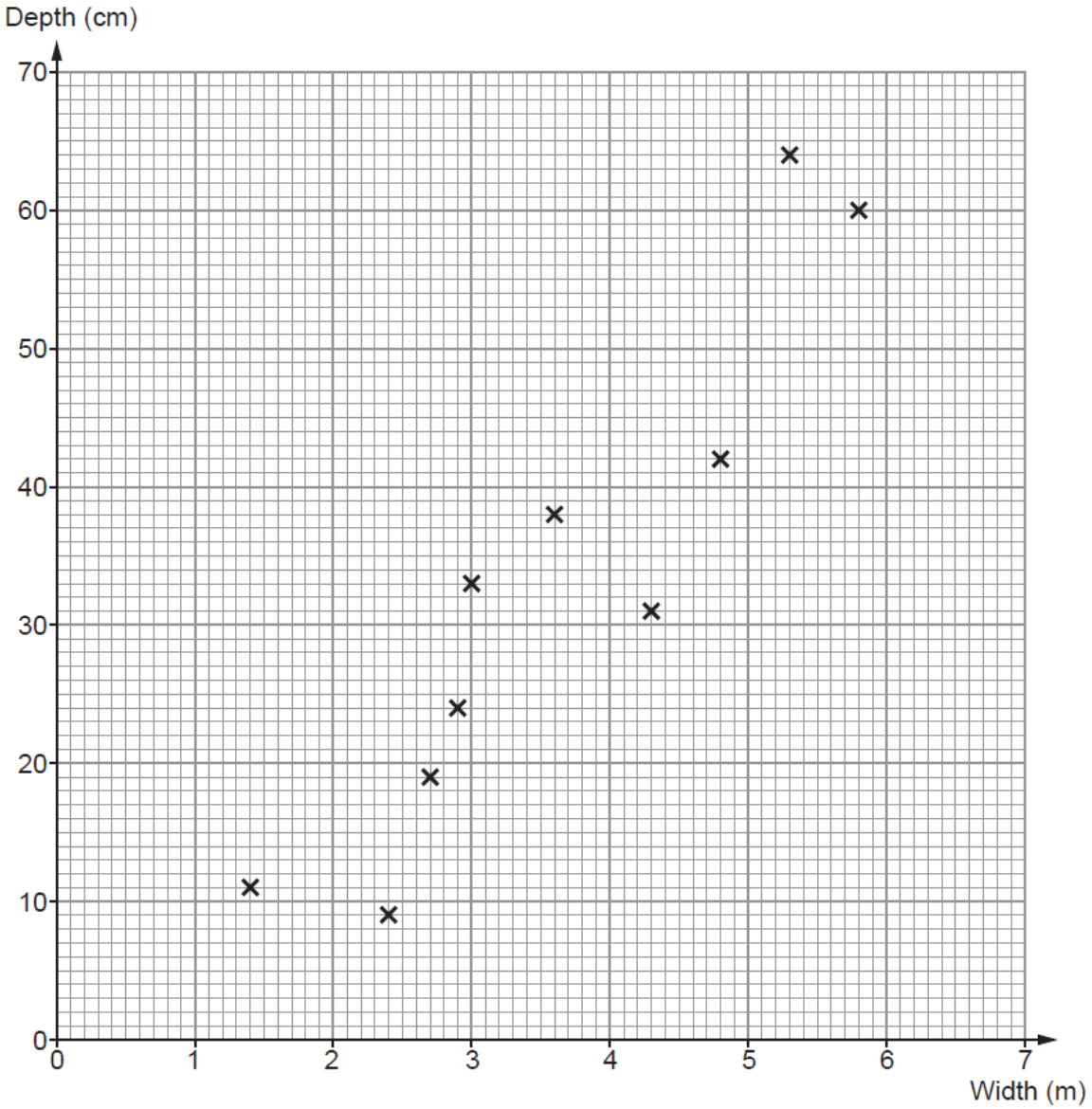
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Question taken from Eduqas examination paper 530002, November 2022

#2

Peng is studying a river for his Geography coursework.
He is investigating whether there is a relationship between the width (in metres) and depth (in centimetres) of the river.

The scatter diagram below shows the information he has collected.



(a) Use information from the scatter diagram to complete the following sentences:

(i) Where the river is at its least depth, the width of the river is ..... m. [1]

(ii) Where the river is at its widest point, the depth of the river is ..... cm. [1]

(b) What conclusion can Peng make about the relationship between the width and depth of the river? [1]

.....

.....

.....

.....

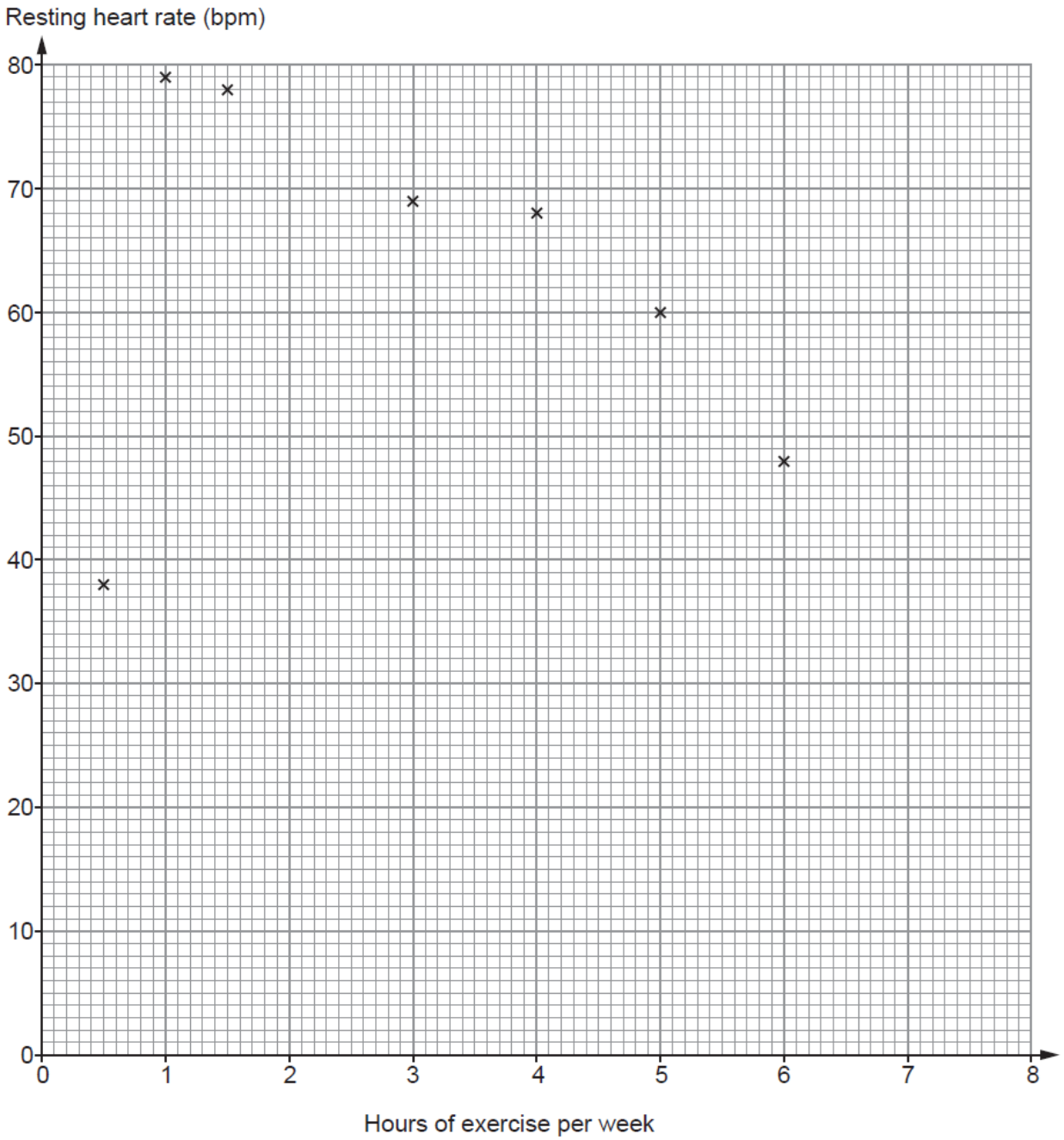
Question taken from Eduqas examination paper 530002, November 2024

#3

Ken measured the resting heart rate, in beats per minute (bpm), of twelve people.

He asked them how many hours of exercise they usually completed each week.

The results for seven of the people have been plotted on the scatter diagram.



(a) Here are the results for the remaining five people.

Hours of exercise per week	2	4	1	7	5·5
Resting heart rate (bpm)	70	58	60	55	57

Plot these results on the scatter diagram. [2]

(b) Ken recorded one person's resting heart rate incorrectly.

Circle the point on the scatter diagram that this is most likely to be. [1]

(c) Describe the relationship between hours of exercise per week and resting heart rate of the people Ken asked.
Ignore the result that was recorded incorrectly. [1]

.....

.....

.....

Question taken from Eduqas examination paper 530002, June 2023

Designing / Criticising Questionnaires: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	1	
#2	2	
#3	2	
#4	2	
#5	4	
#6	4	
Total	15	

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#1

(b) Some of the players in Lindsey's team have missed games because of injury.
She writes a question to find out how many games they have missed.
Here is the question:

How many games have you missed this season due to injury?

☐ 0–2 ☐ 2–4 ☐ 5 or more

State **one** criticism of her question. [1]

.....

.....

Question taken from Eduqas examination paper 530001, November 2023

#2



Ledina goes to Brown Abbey School.
It is a secondary school with 1500 pupils.

Ledina wants to carry out a survey to find out pupils' views of the school uniform.
She plans to ask 10 pupils in Year 7.

Give **two** criticisms of Ledina's plan. [2]

1. .....

.....

.....

2. .....

.....

.....

Question taken from Eduqas examination paper 530001, November 2024

#3

Zena is carrying out a survey to find out how people learn about **recent national political events**.

Here is her question.

Which method do you use to learn about politics?
Tick (✓) one box.

Social media ☐ Newspaper ☐ Radio ☐

Write a better version of Zena's question in the box below.
You must include response boxes. [2]

Question taken from Eduqas examination paper 530001, November 2021

#4



Marcie is carrying out a survey.

She wants to find out how often the people in her town use the local theatre.

Marcie decides to survey only the 15 people at a meeting of her local drama group.

Is this a reasonable plan?

Yes ☐ No ☐

Give **two** reasons to support your answer. [2]

1. .....

.....

.....

2. .....

.....

.....

Question taken from Eduqas examination paper 530001, May 2023

#5

Gita is carrying out a survey to find out what people think of a proposed new road for Redville.

(a) Gita decides to ask the first 20 people she meets at Redville bus station between 8 a.m. and 9 a.m. on a Monday morning.

Give **two** reasons why this plan is unlikely to produce reliable results. [2]

Reason 1:

.....

.....

Reason 2:

.....

.....

(b) Here is a question from Gita's survey:

How often do you use your car?

1 – 2 ☐ 3 – 4 ☐ 4 – 5 ☐ 6 + ☐

Make **two** criticisms of Gita's question. [2]

Criticism 1:

.....

.....

Criticism 2:

.....

.....

Question taken from Eduqas examination paper 530001, November 2019

#6

Pippa and Joe are working on a school project.
The project is based on the use of the local leisure facilities.

(a) Pippa decides to ask adults how much they spend on gym membership each month.
In the box below, write a suitable question with appropriate response boxes to collect this information. [2]

Question

.....

.....

Response boxes

(b) Joe asked some adults how many hours they each spent at the leisure centre during the previous week.
His results are shown below.

Number of hours	0–4	5–9	10–14	15–19	20–24
Number of adults	9	2	1	1	2

Joe accurately calculated an estimate of the mean time spent per adult to be 7 hours.

In his project he stated:

'On average, the adults in my survey each spent 7 hours at the leisure centre last week.'

(i) Explain why the mean is not the best average to use for this data. [1]

.....

.....

(ii) Give **one** other reason why Joe's results may not be reliable. [1]

.....

.....

Question taken from Eduqas examination paper 530001, May 2024

Designing / Criticising Questionnaires: Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	4	
Total	7	

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#1

(a) Alfie wants to find out how much time teenagers spend watching television. He plans to visit the local library in the morning to survey 20 people.

Why is Alfie's plan not suitable? [1]

.....

.....

(b) Shona is designing a questionnaire to find out about the number of hours students spend on their homework. She asks the following question.

How many pieces of homework do you have?

☐ 1 - 3 ☐ 3 - 5 ☐ 6 - 8 ☐ 9+

Give two criticisms of this question. [2]

First criticism

.....

.....

Second criticism

.....

.....

Question taken from Eduqas examination paper 530002, November 2018

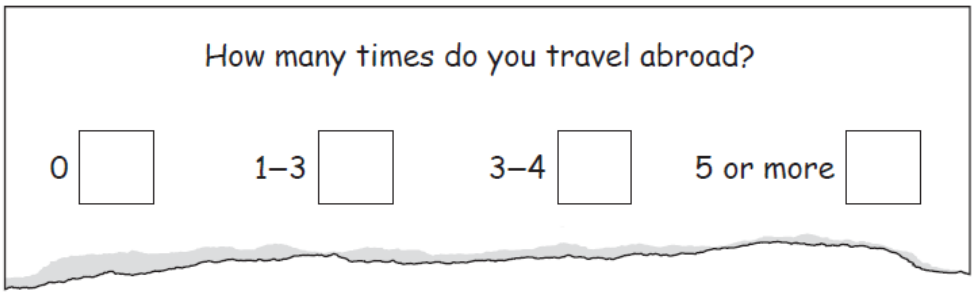
#2

(a) Cara wants to find out if people travel abroad each year and how often.
She plans to stand outside her local travel agent on Tuesday afternoon and survey 35 people.
Give **two** reasons why Cara's plan is **not** likely to give reliable results. [2]

Reason 1

Reason 2

(b) Cara uses a questionnaire to carry out her survey.
One of the questions is shown below.



Give **two** criticisms of the question. [2]

Criticism 1

Criticism 2

Question taken from Eduqas examination paper 530002, June 2024

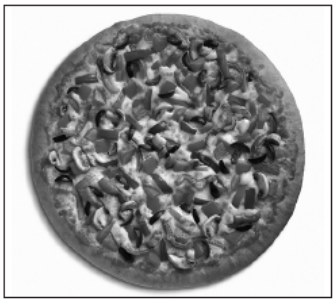
Estimating the Mean from Grouped Frequency Tables: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	6	
Total	6	

created with
eduqas Part of WJEC Question Bank

#1

Jim works in the office for a pizza delivery company.
Last night he recorded the times for the first 50 deliveries.
These times are recorded in the table below.



Delivery time (t mins)	Number of deliveries
$0 < t \leqslant 10$	10
$10 < t \leqslant 20$	12
$20 < t \leqslant 30$	16
$30 < t \leqslant 40$	12

(a) Calculate an estimate of the mean time for these 50 deliveries. [4]

(b) Calculate an estimate of the percentage of these deliveries that took 25 minutes or more. [2]

Question taken from Eduqas examination paper 530001, November 2024

Estimating the Mean from Grouped Frequency Tables: Calculator

Question	Maximum Mark	Mark Awarded
#1	4	
#2	5	
#3	5	
#4	5	
#5	8	
Total	27	

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eduqas Part of WJEC Question Bank

#1

The table gives a summary of the masses, m grams, of 30 buzzards.



Mass, m (grams)	$600 \leqslant m < 700$	$700 \leqslant m < 800$	$800 \leqslant m < 900$	$900 \leqslant m < 1000$
Frequency	8	7	4	11

(a) Moeen uses the midpoint of each group to calculate an estimate of the mean mass of these buzzards.
He does this correctly.

Calculate Moeen's answer. [3]

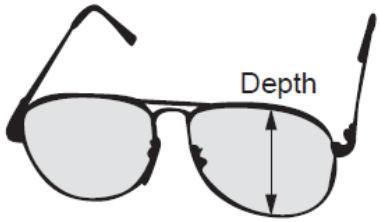
(b) Deeta decides to estimate the mean mass of these buzzards.
She uses the values 600, 700, 800 and 900 rather than the midpoints.

Explain why her method is unlikely to give a good estimate of the mean mass. [1]

Question taken from Eduqas examination paper 530002, November 2022

#2

Marie works for an optician.
She records the depth of a lens in each of the 100 pairs of glasses on display.



Her results are summarised in the table.

Depth of lens, x mm, to the nearest mm	Number of pairs of glasses
$10 \leqslant x < 20$	5
$20 \leqslant x < 30$	20
$30 \leqslant x < 40$	23
$40 \leqslant x < 50$	52

(a) Calculate an estimate for the mean depth of a lens. [4]

(b) In which group does the median lie? [1]

Question taken from Eduqas examination paper 530002, June 2019

#3 The tourist office in Trofenberg displays the snowfall data each month in a table.

The table shows snowfall in Trofenberg for each day during January.

Snowfall, s (cm)	Number of days
$0 \leqslant s < 20$	1
$20 \leqslant s < 40$	8
$40 \leqslant s < 60$	9
$60 \leqslant s < 80$	7
$80 \leqslant s < 100$	6

(a) Calculate an estimate for the mean daily snowfall in Trofenberg for January.
You must show all your working. [4]

(b) There were 9 days when the snowfall was between 40 cm and 60 cm.
On each of these days, the snowfall was actually between 57 cm and 59 cm.

Explain why the estimate for the mean daily snowfall in January may still be fairly accurate. [1]

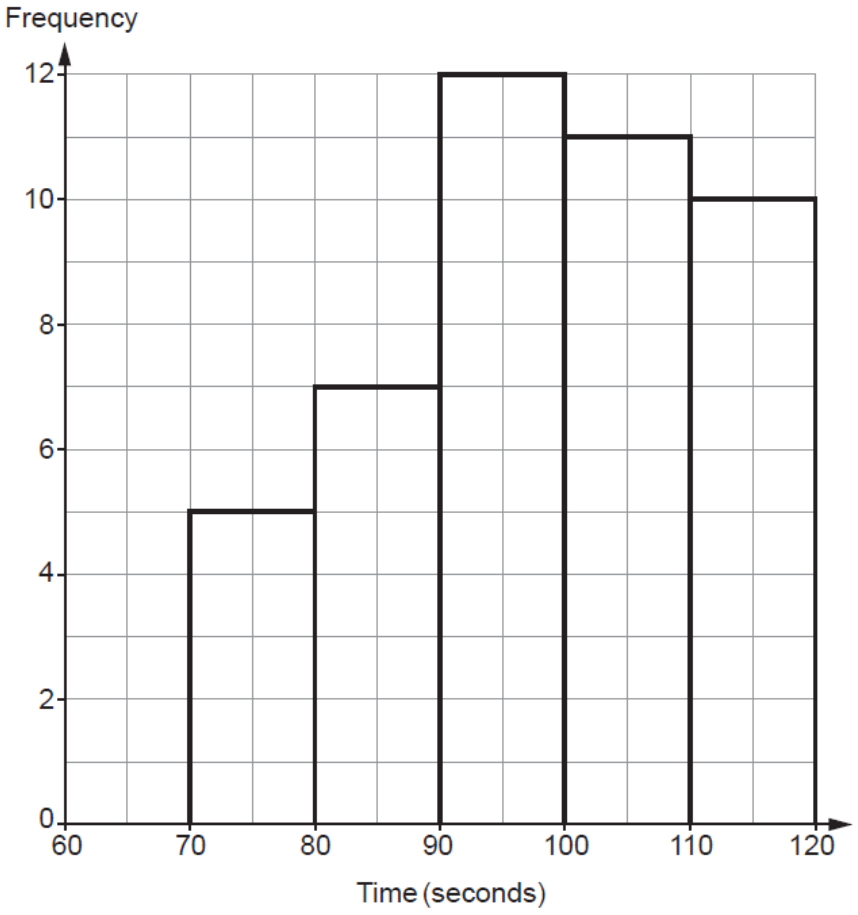
Question taken from Eduqas examination paper 530002, June 2018

#4

45 students took part in a 400 m race.
Their times, in seconds, were recorded.
The frequency diagram below shows the results.

The groups used are as follows:

$70 \leqslant \text{time} < 80$, $80 \leqslant \text{time} < 90$, $90 \leqslant \text{time} < 100$, $100 \leqslant \text{time} < 110$ and $110 \leqslant \text{time} < 120$.



Calculate an estimate for the mean time it took to complete the race. [5]

Question taken from Eduqas examination paper 530002, June 2024

#5

(a) In Queenbridge, the mean daily snowfall for a week was 1·6 cm.
If there had been 1 cm more snowfall on each day, what would the mean daily snowfall have been? [1]

(b) In Sansburg, the snowfall for each of the first 10 days in January was measured.
The results are summarised in the table below.

Daily snowfall, s in cm	Number of days
$1{\cdot}5 \leqslant s < 2{\cdot}5$	4
$2{\cdot}5 \leqslant s < 3{\cdot}5$	2
$3{\cdot}5 \leqslant s < 4{\cdot}5$	1
$4{\cdot}5 \leqslant s < 5{\cdot}5$	0
$5{\cdot}5 \leqslant s < 6{\cdot}5$	3

Calculate an estimate for the mean daily snowfall for these 10 days. [4]

(c) During the first 5 days of February, the mean snowfall in Awezell was 4·7 cm.
On 6th February the snowfall was 23·9 cm.
Calculate the mean snowfall for the first 6 days of February. [3]

..... cm

Question taken from Eduqas examination paper 530002, November 2019

Probability Scales / Expressions: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
#2	3	
#3	4	
#4	4	
Total	13	

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Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) Mark at $\frac{1}{4}$	B1	Mark intent
(b) 5 numbers with exactly 2 numbers less than 4	B1	

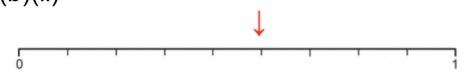
#2

Component 1: Foundation Tier	Mark	Comment
(a) likely and no others options indicated	B1	
(b)(i) Arrow marked at 0	B1	Allow clear intention to indicate 0
(b)(ii) Arrow marked at $\frac{1}{3}$	B1	Allow clear intention to indicate $\frac{1}{3}$
	(3)	

#3

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) B	B1	
(b)(i) 	B1	Allow any unambiguous indication.
(b)(ii) $\frac{1}{6}$	B1	B0 for '1 out of 6' oe.
(c) 2 : 3	B1	
	(4)	

#4

Component 1: Foundation Tier	Mark	Comment
(a)(i) Unlikely indicated	B1	
(a)(ii) Even chance indicated	B1	
(b)(i) 	B1	Diagram takes precedence.
(b)(ii) 	B1	Diagram takes precedence.
	(4)	

Probability Scales / Expressions: Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	3	
#3	5	
Total	11	

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Marking Scheme

#1

Component 2: Foundation Tier	Mark	Comment
(a)(i) Even chance	B1	
(a)(ii) Impossible	B1	
(b) 6/8 indicated on the probability scale 	B1	

#2

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	Comment
(a) certain	B1	
(b) likely	B1	
(c) unlikely	B1	
	(3)	

#3

Component 2: Foundation Tier	Mark	Comment
(a)(i) unlikely	B1	
(a)(ii) An even chance	B1	
(b) 	B1 B1 B1	Allow 3/12 oe and 11/12 oe as labels.
	(5)	

Properties of Probability Events: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	1	
#2	1	
#3	2	
#4	2	
#5	2	
#6	3	
#7	6	
Total	17	

created with
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Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(c) 0.3	B1	

#2

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
0.8 or equivalent	B1	
	(1)	

#3

Component 1: Foundation Tier	Mark	Comment
0·42 + 0·3 + 0·18 = 0·9 AND (1 – 0·9) × 100 = 10 OR 42 + 30 + 18 = 90 AND 100 – 90 = 10	B2	Accept '0.1 is missing' in place of addition to 0·9. B1 for one of the following: • 'the probabilities don't add up to 1' • 0·42 + 0·3 + 0·18 = 0·9 • '0·1 is missing' • 42 + 30 + 18 = 90
	(2)	

#4

Component 1: Foundation Tier	Mark	Comment
1 – 0.75 – 0.1 oe 0.15	M1 A1	Table takes precedence. May be seen in stages If no marks, award SC1 for an answer of 0.24.
	(2)	

#5

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) 0.32 + 0.28 + 0.25 + 0.15 = 1 (and valid conclusion e.g. 'so this is certain.')	E1	Allow e.g. 'They all add up to 1'; must be 1 or 1.0 or 1.00; if 100% seen must also see 32% etc to earn the mark Do not allow 'We have been told there are 4 pictures.'
(b) 0.4(0) oe	B1	Must be a single value; ignore subsequent conversion to different form
	(2)	

#6

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) 5	B1	Allow '5 out of 10'.
(b) 0	B1	Allow 'none' or '0 out of 10'.
(c) 1	B1	Allow '1 out of 10'. If no marks in (a),(b) and (c), award SC1 in (c) for answers of 5/10, 0/10 and 1/10 oe.
	(3)	

#7

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) 2 : 1 : 6 oe	B2	Answer space takes precedence. B1 for either: • any two parts of a three-part ratio in the correct proportion e.g. 2 : 1 : 3 or 3 : 1 : 9 (must be integer values). • a three-part ratio in the correct proportion containing non-integer or algebraic parts e.g. 0.4 : 0.2 : 1.2 or 2x : x : 6x
(b) (P(Y) + P(O) + P(G) = 1 – 0·46 =) 0.54	B1	
$P(G) = 6 \times \frac{0.54}{2+1+6}$	M2	FT 'their 2, 1 and 6' and 'their 1 - 0.46' provided <1. M1 for $\frac{0.54}{2+1+6}$
P(G) = 0·36	A1	CAO
	(6)	

Properties of Probability Events: Calculator

Question	Maximum Mark	Mark Awarded
#1	1	
#2	1	
#3	5	
#4	6	
#5	6	
#6	6	
Total	25	

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Marking Scheme

#1

	Mark	Comment
(a) Indicates 'No' AND explains that e.g. 'Probabilities should be between 0 and 1' or '1.25 is greater than 1' or equivalent.	B1	Allow 'Answer has to be less than 1'

#2

Component 2: Foundation Tier	Mark	Comment
(c) $\frac{13}{16}$ oe ISW	B1	

#3

Component 2: Foundation Tier	Mark	Comment
(a) All probabilities correct. Colour / Pink / Yellow / Green / Blue Probability / 0.5, $\frac{1}{2}$ or 50% / 0.25, $\frac{1}{4}$ or 25% / 0.125, $\frac{1}{8}$ or 12.5% / 0.125, $\frac{1}{8}$ or 12.5%	B2	Table takes precedence. Or equivalent. B1 for one of the following: • P(P) = 0.5 AND P(Y) = 0.25 • P(G) = P(B) = $\frac{1}{2}$(1 - ('their P(P) + P(Y)') except for P(P) = P(Y) = P(G) = P(B) Probabilities must be > 0 and < 1
(b) 3y - 22	B3	Allow e.g. 3y – 22 cm or 3y cm – 22 cm. Mark final answer. B2 for an equivalent unsimplified expression e.g. • y + 2y – 22 • y + 2(y – 11) • y + y + y – 11 - 11 B1 for an expression for the short necklaces simplified or unsimplified e.g. • 2y – 22 • 2(y – 11) • y – 11 + y – 11 B0 for 2 × y – 11 or y – 11 × 2 If no marks, award SC1 for • y + 2 × y – 11 • y + y – 11 × 2
	(5)	

#4

Component 2: Foundation Tier	Mark	
(a)(i) 0.55 oe	B1	
(a)(ii) 0.35 × 740 = 259	M1 A1	Or equivalent complete and correct method.
(a)(iii) 1 – (0.2 + 0.35 + 0.3) oe ÷ 3 = 0.05 oe	M1 m1 A1	FT 1 – ('their 0.55' + 0.3) Answer may be seen in the table Answers in the working space take precedence over the table. Note: If answers of 0.1 and 0.05 are offered without labels (or incorrectly labelled) or not given in the table then award M1 m1 A0.

#5

GCSE (9-1) Mathematics Component 2: Foundation Tier	**Mark**	**Comment**
(a) $\frac{1}{500}$ oe	B1	ISW Do not accept incorrect notation e.g '1 out of 500'
(b) $\frac{300}{500}$ or 0.6 oe	B1	ISW Do not accept incorrect notation e.g '300 out of 500' NOTE: If no marks awarded in (a) or (b) award SC1 for consistent incorrect notation e.g '1 out of 500' AND '300 out of 500'.
(c) No and a correct explanation e.g. 'The probability is $\frac{8}{500}$ (so less than 50%)' 'He has less than half the tickets so less than 50% chance.' 'He would have to buy 250 tickets to have a 50% chance of winning.'	E1	Allow e.g. 'Ben winning and losing are not equally likely.' 'He will have an 8 in 500 chance of winning.' 'He needs more tickets to have a 50% chance.' 'He hasn't bought 50% of the tickets.' Do not allow e.g. 'Winning and losing are not equally likely.' 'he only has 8 out of 500 tickets'
(d)(i) 0.99 oe	B1	
(d)(ii) 0.01 × 500 or 500 – (0.99 × 500) = 5 (tickets)	M1 A1	Accept $\left(\frac{1}{100}=\right)\ \frac{5}{500}$ for M1
	(6)	

#6

Component 2: Foundation Tier	Mark	Comment
(a) "the probabilities sum to 1" oe	E1	Accept e.g. 0.32 + 0.46 + 0.1 + 0.12 = 1 or 32% + 46% + 10% + 12% = 100% as an explanation Allow 32 + 46 + 10 + 12 = 100% 0.32 + 0.46 + 0.10 + 0.12 = 100% 'The probability of other colours is 0' 'red + green + yellow + blue = 1' 32 + 46 + 10 + 12 = 100 (without % signs) Do not allow e.g. 0.32 + 0.46 + 0.10 + 0.12 = 100 32 + 46 + 10 + 12 = 1 'the numbers are equal to 1'
(b) 0.56 oe	B1	ISW. Allow 0.56/1
(c) (Expected no. of winners = 0.12 × 150 =) 18	B1	Working can be in pence or pounds
0.5(0) × 150 – 2.95 × 18	M2	FT 'their derived 12% of 150' Allow M2 only if use of inconsistent units is later corrected M1 for either 0.5 × 150 or 2.95 × 'their derived 12% of 150'
= (£) 21.9(0) or 2190 (p)	A1	FT from M2 for a correct evaluation using 'their derived 12% of 150' If units are given, they must be correct.
Alternative Method *(Expected no. of winners = 0.12 × 150 =) 18*	*B1*	(B2 MR -1)
(150 – 18) × 0.5(0) – 18 × (2.95 – 0.5(0))	*M2*	*FT 'their derived 12% of 150'* *Allow M2 only if use of inconsistent units is later corrected* *M1 for either (150 – 18) × 0.5(0) or 18 × (2.95 – 0.5(0))*
= (£) 21.9(0) or 2190 (p)	*A1*	*FT from M2 for a correct evaluation using 'their derived 12% of 150'* *If units are given, they must be correct*
	(6)	

Probability from Listing All Possible Outcomes: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	3	
#3	3	
Total	9	

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Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(c)(i) S A T S A C S B T S B C P A T P A C P B T P B C	B2	Allow either of the first two rows to be repeated for B2 B1 for any 4 or 5 correct rows, ignoring any repeated rows NB order of letters may be different
(c)(ii) $\frac{2}{8}$ or equivalent; ISW	B1	CAO; do not allow 2 : 8, but accept 25%

#2

Component 1: Foundation Tier	Mark	Comment
(a)(i) Trousers / Top / Trainers B W P B W Y B R P B R Y G W P G W Y G R P G R Y	B2	For B2 complete table with no errors or repeats except of the first two rows. B1 for any 4 or 5 correct rows (of the remaining 6 rows), ignoring any repeated rows or incorrect rows. NB order of rows may be different
(a)(ii) $\frac{1}{8}$ ISW or 0·125 or 12·5%	B1	FT 'their table' providing at least B1 awarded; B0 for 1 : 8 or 1 out of 8.

#3

Component 1: Foundation Tier	Mark	Comment
(a) Girl / Boy P / T P / W R / T R / W S / T S / W Z / T Z / W	B2	Rows could be in any order; letters could be lower case B1 for any 4 or 5 of the remaining 6 rows with no incorrect rows; OR for all 6 remaining rows with extra rows; For B2 they must only have the correct 6 expected rows **except** B2 can also be awarded if all 6 correct expected rows are given and the 2 given rows are repeated **AND** 8 outcomes indicated in (b) e.g. by a fraction with denominator 8.
(b) $\frac{1}{8}$ oe	B1	FT *'their* $\frac{1}{8}$' provided they have at least 4 correct added rows; Allow e.g. 0.125 or 12.5% **but** B0 for e.g. 1 in 8 or 1 : 8
	(3)	

Probability from Listing All Possible Outcomes: Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	5	
Total	8	

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Marking Scheme

#1

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	
(a) <table><tr><th>Letter</th><th>Number</th><th>Shape</th></tr><tr><td>A</td><td>1</td><td>△</td></tr><tr><td>A</td><td>2</td><td>△</td></tr><tr><td>A</td><td>3</td><td>△</td></tr><tr><td>A</td><td>1</td><td>○</td></tr><tr><td>A</td><td>2</td><td>○</td></tr><tr><td>A</td><td>3</td><td>○</td></tr><tr><td>B</td><td>1</td><td>△</td></tr><tr><td>B</td><td>2</td><td>△</td></tr><tr><td>B</td><td>3</td><td>△</td></tr><tr><td>B</td><td>1</td><td>○</td></tr><tr><td>B</td><td>2</td><td>○</td></tr><tr><td>B</td><td>3</td><td>○</td></tr></table>	B2	B2 for a complete table with no errors or repeats, except the first row. B1 for 6 or more correct rows, ignoring any repeated rows. Note: order of rows may be different. Allow the use of words or letters for triangle and circle.
(b) $\frac{1}{12}$ or $0.08\dot{3}$ or $8.\dot{3}\%$ oe ISW	B1	Allow 0.0833(...) or 8.33(…)% FT their table provided B1 awarded in (a). B0 for '1 out of 12' oe or 1:12 only.
	(3)	

#2

Component 2: Foundation Tier	Mark	Comment
(a)(i) <table><tr><th>Coin 1</th><th>Coin 2</th><th>Coin 3</th></tr><tr><td>H</td><td>H</td><td>H</td></tr><tr><td>H</td><td>H</td><td>T</td></tr><tr><td>H</td><td>T</td><td>H</td></tr><tr><td>T</td><td>H</td><td>H</td></tr><tr><td>H</td><td>T</td><td>T</td></tr><tr><td>T</td><td>H</td><td>T</td></tr><tr><td>T</td><td>T</td><td>H</td></tr><tr><td>T</td><td>T</td><td>T</td></tr></table>	B2	For a fully correct table. Allow HHH to be repeated but no others. B1 for at least five different outcomes.
(a)(ii) $\frac{1}{8}$ oe	B1	FT $\frac{1}{\text{'their total number of outcomes'}}$, provided B1 previously awarded. *Note: 3/24 is awarded B0 (from counting H and T's in the table)*
(b) 0.375 × 136 oe = 51 (times)	M1 A1	 *Note: Answer of 51/136 is awarded M1 A0* If no marks, award SC1 for an answer of 85 (from 0.625 × 136)
	(5)	

Outcomes of Probability Experiments from Tables / Frequency Trees: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	3	
#3	6	
Total	12	

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Marking Scheme

#1

	Mark	Comment
(a) 30 40 27 45	B1	
(b) $\frac{5}{16}$ ISW	B2	B1 for a numerator of 5 or for a denominator of 16 in final answer or for $\frac{6}{16}$ oe or for $\frac{12}{16}$ oe seen
	(3)	

#2

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) <table><tr><td></td><td></td><td>12</td></tr><tr><td></td><td>12</td><td>14</td></tr><tr><td>14</td><td>16</td><td>18</td></tr></table>	B1	
(b) $\frac{7}{16}$	B2	FT 'their table' for 7 but denominator must be 16; ignore attempts to convert to an alternative form e.g. a percentage or to simplify the fraction; for B2 or B1 ignore embellishments such as unlikely etc if also stated B1 FT for a numerator of 7 or 'their 7' or for a denominator of 16 in a fraction less than 1; ignore attempts to cancel or convert to an alternative form but must otherwise be their final answer or for $1 - \frac{9}{16}$ or for a correct probability incorrectly expressed e.g. 7 in 16, 7 out of 16, 7 : 16
	(3)	

#3

GCSE (9-1) Mathematics Component 1: Foundation Tier	**Mark**	**Comment**
(a)(i) Pink	B1	
(a)(ii) 0	B1	Accept zero or nil etc; do not accept none or impossible etc
(a)(iii) $\frac{3}{10}$ or equivalent	B2	B1 for $[1 -] \frac{4+3}{10}$ or for a numerator of 3
(b) 10	B2	B1 for 30 or for $\frac{12}{30}$ seen or for 18 seen
	(6)	

Outcomes of Probability Experiments from Tables / Frequency Trees: Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	4	
#3	5	
#4	5	
#5	6	
Total	23	

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Marking Scheme

#1

	Mark	Comment
(d) 1 – [0.33 + 0.25] (= 0.42) ÷ 3 Table completed with 0.14 and 0.14 and 0.14	M1 m1 A1	Mark correct responses completed into the table. Allow for 3 numbers that add to 0.42 CAO If table not completed, allow for unambiguous sight of an answer of 0.14.

#2

	Mark	Comment
(a) 120	B1	
(b) (40 – 13 + 85) = 112	B2	B1 for sight of 27 or the total of 'their 40 – 13' + 85
(c) A valid explanation e.g. 'more of the students are aged 16' or 'students are not working as they are revising'	E1 (4)	

#3

Component 2: Foundation Tier	Mark	Comment
(a) All values correct (9) 18 27 36 4 8 12 (16) (1) 2 3 4	B2	B1 for at least 5 correct values
(b) (chance of winning) 5/12 si 108 ÷ 12 × 5 45 (times)	B1 M1 A1	FT 'their completed table' FT 'their 5' or 'their probability' FT provided it is a whole number 45/108 is awarded B1 M1 A0
	(5)	

#4

Component 2: Foundation Tier	Mark	Comment
(a) All missing entries correct. Score: 12 | 12 3 2 1·2 / 5 | **5** **1.25** 1·2 **2** / 4 | 4 1 1·5 2·5 / 2 | 2 **2** 3 5 / 1 4 **6** 10	B2	B1 for 4 or 5 entries correct Accept $1\frac{1}{4}$ or $\frac{5}{4}$ for 1.25.
(b)(i) $\frac{7}{16}$ or 0.4375 ISW oe	B1	STRICT FT their <u>four</u> scores B0 for 0.44 without sight of 0.4375 B0 for 7:16 or 7 in 16 or 7 out of 16
(b)(ii) $\frac{7}{16} \times 224$ oe = 98	M1 A1	FT 'their answer to (b)(i)' provided $\neq \frac{1}{2}$ and < 1 FT. Mark final answer. Allow rounded or truncated FT answers. Award M1 A0 for $\frac{98}{224}$
	(5)	

#5

Eduqas Autumn 2018 Component 2: Foundation Tier	Mark	Comment
(a) 1 – [0.1+0.17+0.24+0.25] (= 0.24) ÷ 2 Table completed with 0.12 and 0.12	M1 m1 A1	Mark correct responses completed into the table. CAO
(b) 0.51	B1	
(c) 600 x 0.17 = 102	B1 B1 (6)	*Alternative:* *1/6 = 0.166(…) < 0.17* *B1* *1/6 of 600 = 100, so Exp(2) > 100* *B1*

Expected Outcomes: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	5	
Total	5	

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Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) 0.35 identified as the appropriate relative frequency for 400 customers	B1	and no other relative frequency
$0.35 \times 400 \times 3$ or 140×3 si	M2	FT 'their 0.35', provided it is 0.31, 0.43 or 0.38 or 0.34 or 0.36 for M2 or M1; no FT if e.g. a sum of relative frequencies has been used M1 for 0.35×400 si; not just for e.g. '0.35 of 400'
(£)420(.00)	A1	CAO
(b) Yes and valid explanation involving (1000 being) the **largest** number of customers e.g. 'It is the relative frequency from the largest sample.'	E1	Do not allow 'Out of 1000 customers 0.38 were sent a free box.' or 'Yes as the average relative frequency to customer ratio is higher'
	(5)	

Expected Outcomes: Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
#2	3	
#3	5	
Total	10	

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Marking Scheme

#1

	Mark	Comment
(b) (1/6 of 24 =) 4 (times)	B1	
(c) Indicates '4-sided spinner' AND explains e.g. '1/4 is greater than 1/6' or '1/4 is the greater proportion' or equivalent.	E1	Allow 'less numbers on 4-sided' or equivalent. Allow 'the angle is greater on 4-sided' Do not allow references to greater area or space.

#2

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	Comment
(1 – 0.8(0)) × 40 OR 40 – 0.8(0) × 40 OR (0.15 + 0.05) × 40 OR 0.15 × 40 + 0.05 × 40	M2	M1 for sight of one of the following: • 1 – 0.8(0) • 0.15 + 0.05 • 0.2(0) • 0.8(0) × 40 • 32 • 0.15 × 40 • 0.05 × 40
8	A1	CAO
	(3)	

#3

Eduqas Summer 2018 C2 Foundation Tier	Mark	Comment
(a) Indicates or implies 'No' or 'Don't know' with a reason, e.g. 'No, not all scores are equally likely', 'Don't know, as not enough throws to tell', 'No as it shows fewer 2s and 5s', "No, high numbers of 1 and 6', 'No, appears to be biased towards 1 and 6'	E1	Accept, e.g. 'No, should have equal amounts for each number', Allow, e.g. 'Don't know, dice are random so there could be variety in results', 'No, if fair all would be 1/6'
(b) $\frac{11}{120}$	B2	B1 for 11/… or $\frac{4+5+2}{40+40+40}$
(c) $\frac{37}{120}$ (× 480) 148	M1 A1 (5)	Accept for 'their 4+5+4+8+8+8' (× 480) 'their 40 + 40 + 40' CAO A final answer of 148/480 is M1, A0

Two-Way Tables: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	5	
#2	7	
Total	12	

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Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
<table><tr><th></th><th>Sprint</th><th>Middle</th><th>Long</th><th>Total</th></tr><tr><td>S</td><td>14</td><td>28</td><td>40</td><td>82</td></tr><tr><td>J</td><td>17</td><td>21</td><td>5</td><td>43</td></tr><tr><td>Tot</td><td></td><td></td><td>45</td><td>125</td></tr></table> OR <table><tr><th></th><th>Sprint</th><th>Middle</th><th>Long</th><th>Total</th></tr><tr><td>S</td><td>14</td><td>28</td><td>40</td><td>82</td></tr><tr><td>J</td><td>17</td><td>21</td><td>5</td><td></td></tr><tr><td>Tot</td><td>31</td><td>49</td><td>45</td><td>125</td></tr></table>	B4	Mark to the candidate's advantage Award B4 if 21 is in the cell for Junior middle distance runners and there are no incorrect entries in the table OR B2 for the given information correctly placed (shaded cells) or B1 for any 3 of these correct and B2 for the necessary unshaded cells correct or B1 for any 2 of these correct; ignore entries in the empty cells Allow 125 omitted but do not ignore an error if the value written in this cell is wrong
$\frac{21}{125}$	B1	FT $\frac{\text{'their derived 21'}}{125}$; denominator must be 125; and in a fraction <1; ignore attempts to convert to other forms e.g. decimal or ratio;
	(5)	

#2

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) $\left(\frac{3}{5}\text{ of } 45 =\right)$ 27 (prefer backstroke)	B1	
$\left(\frac{2}{3}\text{ of } 45 =\right)$ 30 (juniors)	B1	
$\left(\frac{1}{6}\text{ of } 30 =\right)$ 5 (junior and prefer butterfly)	B1	STRICT FT 'their 30' if an integer
2 (senior and prefer backstroke)	B1	STRICT FT 'their 27' – ('their 30' – 'their 5') B'fly | B' stroke | Total S | 13 | 2 | 15 J | 5 | 25 | 30 Total | 18 | 27 | 45
$\frac{2}{45}$ oe; ISW	B1	FT 'their 2' from their table
(b) $(18 \div 3) \times 11$ or equivalent	M1	May be in steps
66	A1	If no marks, award SC1 for correctly finding the number of swimmers as 48; may be embedded in the ratio 48 : 18.
	(7)	

Two-Way Tables: Calculator

Question	Maximum Mark	Mark Awarded
#1	4	
Total	4	

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Marking Scheme

#1

Eduqas Autumn 2018 Component 2: Foundation Tier	Mark	Comment
(a) Year 7 / Year 8 / Year 9 / Total Boys: **73** / (75) / (74) / (222) Girls: (87) / **77** / (72) / (236) Total: (160) / (152) / **146** / (458)	B2	B1 for any 2 correct values
(b) 15	B1	
(c) Year 7 girl identified.	B1 (4)	FT 'their table'

Venn Diagrams: Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	4	
#3	4	
#4	4	
#5	4	
#6	4	
Total	23	

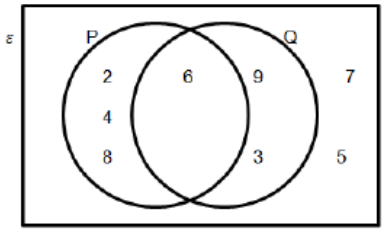
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Marking Scheme

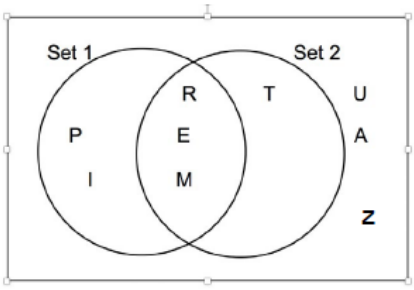
#1

Component 2: Foundation Tier	Mark	
(b)(i) 62	B1	Venn diagram takes precedence
(b)(ii) $\frac{31}{104}$ oe ISW	B2	B1 for $\frac{17+14}{104}$ or $\frac{31}{b}$, where b > 31 or $\frac{17+14}{b}$, where b > 31

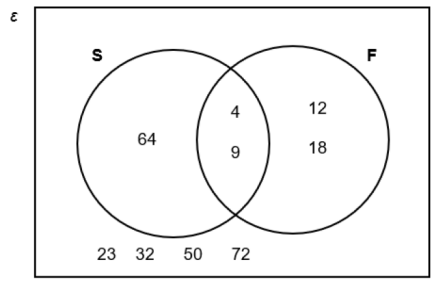
#2

Eduqas Summer 2018 C2 Foundation Tier	Mark	Comment
(a)  	B2	Award B1 for identifying 2,3,5,6 AND placing two or three numbers correctly.
(b) $^{2}/_{8}$ or equivalent	B2 (4)	ISW B1 for 2/n or m/8 in a fraction <1 or '2 out of 8' or '2 in 8' FT their Venn diagram.

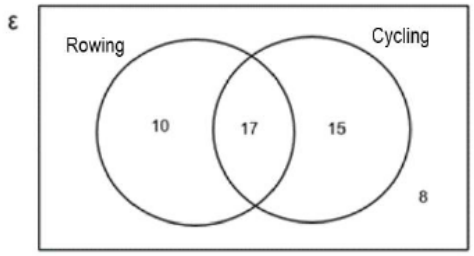
#3

	Mark	Comment
(a)  	B2	Award B1 for Set 1 and Set 2 completed correctly with A, U and Z omitted or B1 for all letters used with at most 2 errors.
(b) $\frac{3}{9}$ or equivalent	B2 (4)	ISW FT 'their intersection' B1 for 3/n or m/9 in a fraction <1 or '3 out of 9' or '3 in 9'.

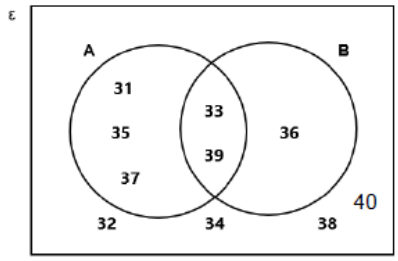
#4

Component 2: Foundation Tier	Mark	Comment
(a) A correct Venn diagram  	B2	B1 for 6, 7 or 8 unique numbers correctly placed. OR B1 for everything correct except sets S and F reversed OR B1 for all correct with 23, 32, 50 and 72 missing *Note: If numbers are used that are not from the set. Penalise -1 for each additional number.*
(b) $\frac{2}{9}$ oe	B2	ISW FT either the Venn diagram in (a) or the list BUT not both for B2 or B1 to candidates' advantage. *Note: Do not FT if they have no entries in the required section.* B1 for a numerator of 2 or a denominator of 9 in a fraction < 1. Allow B1 for '2 out of 9' or '2 in 9'
	(4)	

#5

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	
(a) A fully correct Venn diagram  	B2	If zero is seen in the intersection award no marks. All blank spaces are assumed to be zero B1 for one of the following: • 8 and 17 correctly placed • 8 correct, Rowing 27 AND Cycling 32 e.g. 11, 16, 16 • 8 correct, Rowing 27 OR Cycling 32 AND the three values that add to 42 e.g. 11, 16, 15 • 10, 17, 15 correct and 8 omitted Note: Penalise -1 for use of tallies or dots.
(b) $\frac{10}{50}$ or $\frac{1}{5}$ oe ISW	B2	FT their Venn diagram provided no sections are left blank or zero. Mark to the candidates advantage. FT $\frac{\text{'their 10'}}{50}$ provided 'their 10' < 27 B1 for $\frac{\text{'their 10'}}{\text{'their 50'}}$ provided 'their 10' < 27 B1 for $\frac{\text{'their 10'}}{n}$ provided 'their 10' < 27 and 'their 10' < n < 50 Penalise incorrect notation (e.g. '10 in 50') −1.
	(4)	

#6

Component 2: Foundation Tier	Mark	Comment
(a) A correct Venn diagram 	B2	B1 for 7, 8 or 9 unique numbers correctly placed. OR B1 for everything correct except sets A and B reversed OR B1 for all correct with 32, 34, 38 and 40 missing
(b) 3/10 or 0.3 oe	B2	ISW FT either the Venn diagram in (a) or the list BUT not both for B2 or B1 to candidates' advantage B1 for a numerator of 3 or a denominator of 10 in a fraction < 1. Allow B1 for '3 out of 10' or '3 in 10'.
	(4)	

Probability of Independent / Dependent Combined Events: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
#2	2	
#3	2	
Total	6	

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Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(b) $\frac{1}{100}$ or equivalent	B2	B1 for $\frac{1}{10}\times\frac{1}{10}$ or equivalent

#2

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
$\frac{1}{8}$ oe; ISW	B2	B1 for $\frac{1}{2}\times\frac{1}{2}\times\frac{1}{2}$ oe If no marks awarded, then SC1 for evidence of the only possible score being 1, 1, 1 e.g. in a partially complete list of possible scores with all other scores even and 1 × 1 × 1 listed as odd
	(2)	

#3

Component 1: Foundation Tier	Mark	Comment
$\frac{2}{8}\times\frac{2}{8}$ or $\frac{1}{4}\times\frac{1}{4}$	M1	
$\frac{4}{64}$ or $\frac{1}{16}$ ISW	A1	
	(2)	

Tree Diagrams: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	5	
#2	6	
#3	7	
Total	18	

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Marking Scheme

#1

Component 1: Foundation Tier	Mark	Comment
(a) 0.7 AND 0.9 correctly placed	B1	
(b) 0.6 × 0.3 oe 0.18 oe	M1 A1	 ignore attempts to convert to a different form; ignore embellishments such as unlikely, even if incorrect
(c) 0.4 × 0.1 oe 0.04 oe	M1 A1	 ignore attempts to convert to a different form; ignore embellishments such as unlikely, even if incorrect
	(5)	

#2

Component 1: Foundation Tier	Mark	Comment
(a) 0·6 on the 'Does not go on a train' branch	B1	
Use of 0·4 × …….. = 0·28 OR 0·28 ÷ 0·4	M1	
P(Goes to the theatre) = 0.7	A1	Allow M1A1 if 0·7 seen on one of the 'Goes to the theatre' branches.
0·7, 0·3, 0·7 and 0·3 correctly placed	A1	FT 'their 0.7' only if M1 awarded. (0·28, 0·72, 0·28, 0·72 is M0A0A0)
(b) 0·6 × 0·3 0.18	M1 A1	FT their tree provided both values between 0 and 1.
	(6)	

#3

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a)		Allow equivalent decimal probabilities
$\frac{9}{10}$ and $\frac{1}{10}$ oe, correctly placed on the tree diagram	B1	
$\frac{9}{50} \div \frac{9}{10}$ or $\frac{9}{10} \times x = \frac{9}{50}$	M1	
$\frac{1}{5}$ oe	A1	Implies M1
$\frac{1}{5}, \frac{4}{5}$ and $\frac{1}{5}, \frac{4}{5}$ oe on tennis branches	B1	FT provided M1 awarded AND 'their $\frac{1}{5}$ and $\frac{4}{5}$' add to 1
(b)		FT 'their $\frac{1}{5}$ and $\frac{4}{5}$' provided they add to 1
$(\frac{9}{10} \times \frac{4}{5}) + (\frac{1}{10} \times \frac{1}{5})$ oe	M2	M1 for sight of $\frac{9}{10} \times \frac{4}{5}$ or $\frac{1}{10} \times \frac{1}{5}$ oe
$\frac{37}{50}$ oe	A1	
	(7)	

Tree Diagrams: Calculator

Question	Maximum Mark	Mark Awarded
#1	4	
Total	4	

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Marking Scheme

#1

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	
(a) Correctly completing the tree diagram 0.6, 0.75, 0.25, 0.75 oe	B2	B1 for a correct pair of branches (total 1)
(b) 0.6 × 0.25 = 0.15 oe	M1 A1	FT their tree diagram provided their values are between 0 and 1 FT Ignore incorrect conversion of 'their 0.15' to another form if the correct answer seen. Do not ignore further calculations.
	(4)	

Constructing and / or Interpreting Tables / Charts / Diagrams: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	1	
#2	2	
#3	2	
#4	2	
#5	2	
#6	3	
#7	4	
#8	4	
#9	4	
#10	4	
#11	4	
#12	5	
#13	5	

#14	5
#15	6
#16	7
Total	60

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Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) Valid comment e.g. 'The groups overlap so people who spent £20 may be in different groups.' or 'His groups are too big.' or 'You cannot tell which group 40 is in.'	E1	Do not allow comments such as 'The ages in the groups are too big'

#2

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) 112	B2	B1 for evidence of 2 correct costs from 40, 24, 18, 30 or for $11 \times 10 + 10 \div 2$ or equivalent

#3

Component 1: Foundation Tier	Mark	Comment
$\frac{90}{120}$ oe ISW	B2	May be seen on the diagram. B1 for one of the following: • sight of 90 • sight of 20+30+40 • $\frac{'their\ 20+30+40'}{120}$ with at most one error in a value or the addition.
	(2)	

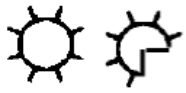
#4

	Mark	Comment
(a) Valid comment e.g. 'Some of the data is lost' or 'There are too many categories for a pie chart' or 'It does not show coffee and green tea'	E1	Allow e.g. 'It does not show the value of sales'
(b) Valid comment e.g. 'The number of visitors seems to be decreasing' or 'The annual number is going down.'	E1	Ignore embellishments/superfluous comments about seasons. Allow e.g. 'From 2015 to 2018 the numbers have decreased.'
	(2)	

#5

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
*(a) Valid error comment e.g. 'The vertical scale from 1 to 174 is missing.'	E1	Accept an indication on the graph e.g. the scale break circled or a comment such as 'it is not accurately drawn especially next to the 0'. Do not allow e.g. 'The points have been connected' or 'Part of the scale is missing' (without further comment e.g. part of the vertical scale would be ok) Ignore embellishments to a correct statement provided they are not contradictory
(b) Valid impact comment e.g. 'It looks like there is a peak time at 10 am (when there is not).' or 'It makes the difference (at 10am) look greater.'	E1	They may have included some information in (a) to support their answer here, take the two parts together for this part if necessary and not contradictory but must have attempted an answer for (b) Allow e.g. 'They might not look at the y axis to see how small the difference really is.' Do not allow e.g. 'People will think there are less cars, like 2 instead of 176'.
	(2)	

#6

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) 4	B1	
(b) 8	B1	FT 'their key' × 2
(c) 	B1	FT 'their key' wherever possible.
	(3)	

#7

Component 1: Foundation Tier	Mark	Comment
(a) 81 – 44 37(%)	M1 A1	Allow one error in reading scale e.g. 80 – 44 or 82 – 44 or 81 – 42. Calculation must be seen (or implied) for M1 A0. CAO
(b) Correct bar at 95	B1	Allow good freehand. Ignore inconsistent width.
(c) Valid comment e.g. '(The percentage of people owning mobile phones seems to have been) increasing'	E1	If values are given, they have to be correct (44% and 95%) or FT from (a). Allow 'change' only if correct values are referred to. Accept 'gone up' and other informal references to an increase.
	(4)	

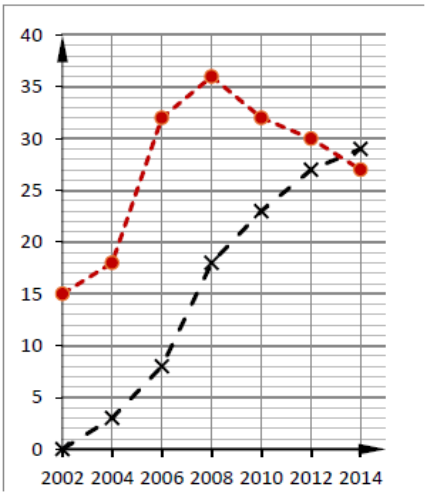
#8

Component 1: Foundation Tier	Mark	Comment
(a) (Key: ◯ represents) 4 (students). Chicken 10 Ham 12 Cheese ◔ Tuna ◯ ◔	B1 B2	FT 'their key' if possible for B2 or B1. B1 for any 2 or 3 correct. Can be unshaded and in any orientation.
(b) Ham	B1	FT from (a) provided not contradicted by table or pictogram
	(4)	

#9

Component 1: Foundation Tier	Mark	Comment
(a)(i) Jamal selected and all 3 correct totals seen as tallies or frequencies. Candidate / Tally / Frequency Ashton 𝍸 𝍸 || 7 Jamal 𝍸 𝍸 𝍸 10 Oliver 𝍸 ||| 8	B2	If both tallies and frequencies are given, they must agree for B2 and B1. Frequencies may not be seen in the table. B1 for one of the following: • three frequencies or tallies completed with one or two correct and a correct FT decision • three correct frequencies or tallies and an incorrect decision or no decision. • Jamal, with no incorrect working seen. If no marks, award SC1 for a single slip in converting tallies to frequencies with Jamal selected.
(a)(ii) 8 (× 100) 25 32 (%)	M1 A1	FT 'their frequency' for Oliver if unambiguously stated in (a)

#10

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) Correct plot	P1	May or may not be joined 
(b)(i) 2004	B1	
(b)(ii) 2006 and 2008	B1	
(b)(iii) Any valid comparison. e.g. 'The composting percentage is always increasing but the recycling percentage increases (until 2008) but then decreases.' or 'From 2012 the recycling and composting rates are about the same.' or 'From 2002 to 2008 both rates are increasing but after 2008 the recycling rate decreases whereas the composting rate keeps on increasing.' or 'The recycling rate is more than the composting rate until 2012 but in 2014 a greater % of waste is composted than recycled.' or 'More waste is recycled than is composted until 2012. (After that there is about the same amount of each).'	E1	A comparison does not need to mention the years but must mention composting **and** recycling. Allow e.g. 'Waste recycled has eventually begun to fall where compost has continued to gradually rise, (eventually taking over recycled waste)' or 'As the percentage of composting has increased the percentage of recycling has declined from 2008' or 'More waste is being recycled and composted in 2014 than in 2002' or 'Both the waste recycling and composting have increased between 2002 and 2014'
	(4)	

#11

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) Abby selected **and** evidence of all 3 correct totals seen as frequencies and/or tallies Abby 19 Bea 14 Cherry 17	B2	Frequencies may not be in the table; tallies and frequencies for total votes may not agree but frequencies take precedence for B2; allow for seeing e.g. 10, 8, 12 as frequencies for given tallies and then the correct tallies for the remaining list (which would together total 19, 14, 17 if added) B1 for three frequencies or tallies for total votes with one correct and a correct FT decision OR for two correct frequencies or tallies for total votes OR for three correct frequencies or tallies for total votes and an incorrect or no decision.
(b) $\frac{20}{50}$ (×100) oe 40 (%)	M1 A1	Allow for $\frac{40}{100}$
	(4)	

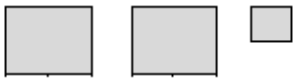
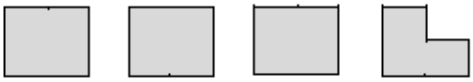
#12

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) Correct frequency diagram	B2	May be a bar chart or frequency polygon. For frequency polygon, ignore points to the left of (35, 12) and to the right of (75, 29) B1 for a bar chart attempt, 3 or 4 bars correct; no gaps NB heights are 12, 65, 74, 55, 29 or, for a frequency polygon attempt, 3 or 4 points plotted correctly and joined; mark intent to join points NB (35, 12) (45, 65) (55, 74) (65, 55) (75, 29) Allow good freehand
(b) $\frac{60}{240}$ oe, ISW	B2	Allow e.g. $\frac{1}{4}$, 0.25 or 25% but not 1 : 4 B1 for 5 + 40 + 60 + 75 + 60 or 240 seen or for 60 as the numerator in a fraction less than 1
(c) Correct comparison e.g. 'In 2019 a greater percentage of plastic was recycled as there were fewer people in the 30 – 40 category in 2019 than in 2018.' or 'In 2019 the modal class is 60 to 70 whereas in 2018 it is only 50 to 60.' or 'In 2019 more people recycled more than 70% of their plastic than in 2018.'	E1	Must be a comparison Allow e.g. 'The bars are taller to the right in 2019.' or 'The mode was lower in 2018.' or 'More people are recycling more plastic.' or 'More plastic is recycled in 2019' or 'It has increased.' or 'The amount recycled by the members has increased in the past year.' Do not allow e.g. 'It has increased as they have more members.' or 'The percentage of **people** recycling plastic has gone up.' or 'The amount of **people** recycling has increased.' or 'The plastic recycled goes up throughout 2019 whereas in 2018 it went up at the start of the year, then down.'
	(5)	

#13

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) 20	B1	
(b)(i) 0.1 indicated	B2	B1 for sight of $\frac{12}{120}$ oe; allow for 12 out of 120 or 12 ÷120 or 12 : 120 or 12 in 120
(b)(ii) $\frac{1}{3}$	B2	B1 for sight of $\frac{40}{120}$ or any fraction equivalent to $\frac{1}{3}$ or for $\frac{1}{3}$ seen and then spoiled or for a correct probability in lowest terms, incorrectly expressed e.g. 1 in 3, 1 out of 3, 1 : 3 or for a fraction less than 1 with either numerator of 40 or denominator of 120 then simplified to lowest terms
	(5)	

#14

GCSE (9-1) Mathematics Component 1: Foundation Tier	**Mark**	**Comment**
(a) Lines drawn at 11 for May and 8 for Sept Correct pictogram diagrams for July e.g.  and August e.g.  and correct key: 4.	B3	Mark intent; must be lines not bars B2 for any 3 or 4 correct or B1 for any 2 correct
(b) 57	B1	FT either diagram; for pictogram, key must be completed if FT
(c) August CAO	B1	Allow August and 15 (but not just 15 only)
	(5)	

#15

Component 1: Foundation Tier	Mark	Comment
(a) Valid criticism e.g. 'There should be no gaps between the bars.'	E1	Allow e.g. 'Some of the values overlap.' or 'There should not be gaps.' or 'The bars should all touch.' or 'The 12.4 appears on two bars.' or 'They have the same numbers twice.' or 'The bars should be together.' Ignore irrelevant embellishments but do not allow a contradiction or an incorrect statement e.g. 'It goes 12 to 12.4 and then 12.4 again. It should have gone on to 12.5' is E0
(b) (Frequencies of) 9, 12, 4, 5 si At least 1 of $9 \times (360 \div 30)$ $12 \times (360 \div 30)$ $4 \times (360 \div 30)$ $5 \times (360 \div 30)$ For at least 3 of (Angles) B 108, F 144, W 48, C 60 Correct, labelled pie chart with no incorrect angles seen in working	 B1 M1 M1 A2	Question requires working to be shown FT 'their frequencies'; allow for e.g. 9×12; allow for $360 \div 30 = 12$ and sight of one correct angle e.g. 108 or sight of at least 2 correct angles Allow tolerance of ±2° for all angles; **Lines must be ruled** **If angles stated:** measure 3 angles and if in tolerance and no incorrect angles *or* *percentages* have been stated, allow the A2 **If 3 or 4 angles not stated:** measure all 4 angles and if all 4 in tolerance allow the A2 otherwise award A1 A1 FT for at least 2 out of their 4 angles in tolerance; may be unlabelled NB B1 M1 M0 A1 is possible
	(6)	

#16

	Mark	Comment
(a)(i) Labels on both axes	B1	horizontal axis labels may be on bars; at least the bars labelled with the country names; allow abbreviations e.g. B, K, J, S
Uniform scale on vertical axis	B1	at least 2 values; must start with 0
All bars of equal width and correct height	B1	heights: 17, 12, 12, 6 mark intent allow inconsistent-width gaps or no gaps
(a)(ii) 2 South Africa	B2	B1 for each; allow abbreviations for South Africa if clear
(b) $(70 - 18) \div 2$ 26	M1 A1	May be in stages If no marks then SC1 for two improving trials on $x + x + 18 = 70$ oe
	(7)	

Constructing and / or Interpreting Tables / Charts / Diagrams: Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	4	
#3	4	
#4	4	
#5	4	
#6	5	
#7	5	
#8	5	
#9	6	
#10	6	
#11	7	
#12	7	
#13	7	
#14	8	

#15	9
#16	7
Total	91

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Marking Scheme

#1

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	Comment
(a)(i) 123	B1	
(a)(ii) $\frac{57}{123}$ oe	B2	FT 'their 123' provided it is greater than 57. If all four values are seen above with only an error in the 42 or the 15 FT the correct sum of 'their 42' + 15 or 42 + 'their 15' e.g. $\frac{19}{41}$; B1 for sight of 57 or B1 for $\frac{42+15}{123}$

#2

	Mark	Comment
(a) 101 (miles)	B1	
(b) Manchester and York	B1	Accept in either order.
(c) (204 + 34) – 216 = 22(miles)	M1 A1 (4)	CAO If no marks awarded, then SC1 for sight of 238 or for the correct answer to 'their 204' + 'their 34' – 216, provided that either 204 or 34 is correct.

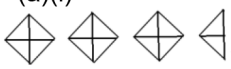
#3

Eduqas Autumn 2019 C2 Foundation Tier		**Comments**
64 km/h is 64 × 50 ÷ 80 40 (mph)	M1 A1	 CAO
12 × 1.3 + 24 × 1.2 or for sight of 15.6 and 28.8	M1	FT 'their mph' for one of: • intention to calculate 'a × 1.3 + b × 1.2' • correctly evaluated 'a × 1.3 and b × 1.2' provided 'their b' > 'their a'
44.4 (m)	A1 (4)	Only FT for speeds used from the table

#4

Component 2: Foundation Tier	Mark	Comment
(a) A valid explanation e.g. 'company B might have more employees than company A' 'we don't know how many employees there are in each company' 'company A may have a bigger proportion of female employees, but it may have less employees overall'	E1	Allow e.g. 'one company might be smaller than the other' 'there are no numbers given so we can't be certain A has more than B' 'does not show the number of males or females' 'they only show the proportion of staff, not the number of staff' 'the number (of staff) in the two companies could be different' Do not allow e.g. 'there are no numbers given'
(b) 30(%) or 65(%) (difference) 35 (%)	B2 B1	B1 for 108/360 (x100) or 234/360 (x100)
Alternative method *(234 – 108) / 360 (x 100)* *35(%)*	*M2* *A1*	*M1 for 234 – 108 (= 126)*
	(4)	

#5

Component 2: Foundation Tier	Mark	
(a)(i) 	B1	Allow if internal lines are missing. Allow alternative representations of the half square.
(a)(ii) 36 + 21 + 48 + 30 + 42 oe 177 (cupcakes)	M1 A1	Allow M1 for attempting to add all the values for the five days with at most one error. CAO If no marks, award SC1 for an unsupported answer in the range 174 to 180. Note: Unsupported 177 is awarded M1A1.
(b) A correct explanation e.g. '(17 is) not a multiple of 3'. 'It cannot be divided by 3'. 'It goes up in 3's so cannot make 17'. '3 doesn't go into 17'. '(17 is) not in the 3 times table'. '5 would be difficult to show'. '2 would be difficult to show'. 'It can show 15 or 18 (but not 17)'.	E1	Do not allow e.g. 'Can't show 17 because one shape represents 12 and two shapes represents 24'. 'It goes up in 12's'. '3 cannot make 17'. '17 is difficult to show'. 'Each triangle is worth 3'. 'It goes up in 3's'.
	(4)	

#6

Eduqas Autumn 2018 Component 2: Foundation Tier	Mark	Comment
(a) Two criticisms of the presentation of the graph, e.g. 'bars are different widths' 'vertical scale is not uniform' 'axes not labelled (frequency)' 'can't have less than 1 child (turquoise)'	E2	E1 for only one correct statement. Do not accept 'bars (of) different sizes' unless it is clear they mean widths.
(b)(i) 𝍸 𝍸 || and 6 filled in correctly	B1	
(b)(ii) Correctly drawn bar graph. Uniform scale and labelled axes Bars of correct height and same width.	 B1 B1 (5)	FT 'their table values'

#7

Component 2: Foundation Tier	Mark	
(a)(i) 2014 and 2016	B1	
(a)(ii) No and valid explanation e.g. one of the following: 'There is no data for 2009' 'The data is only for even-numbered years.' 'The lines joining the points on a time-series graph have no value.' 'The graph shows 'households' and Jane mentions 'people''.	E1	Allow one of the following: 'There is no point on 2009' 'We can't tell the % exactly between the even years' 'It could be higher or lower between the plotted points'
(b)(i) All points correctly plotted	P1	Check overlay for tolerance Allow if plots are correct but incorrectly joined.
(b)(ii) 2018	B1	FT 'their plotted points' providing at least 5 points correctly plotted and a unique solution
(b)(iii) Comment that includes words indicating internet keeps on increasing whereas desktop ownership decreases (after 2014)	E1	A comment does not need to mention the years but must imply computer ownership **and** internet connection. Allow 'the county will follow a similar trend to Eduvale'
	(5)	

#8

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	Comment
(a)(i) Any valid reason e.g. '10 years is too far ahead to predict.' 'the paper might not be produced if sales continue to fall' 'the change each time is not consistent.'	B1	If a satisfactory reason is given ignore further spurious comments. Allow e.g. 'because the sales may not follow the pattern of the graph.' 'there is not an equal; drop in numbers sold every 5 years' 'it's too far in the future, we can't tell' 'it could increase instead of decrease' 'more people may read the paper on the internet' Do not allow statements that do not relate to the graph e.g. 'there might be more or less than 10 000 sold in 2025' as no reference to the trend 'we can't tell' as no reference to time or trend
(a)(ii) $(100 \times)\frac{62(000)-26(000)}{62(000)}$ OR $(100 \times)0.58(\ldots)$ or $(100 \times)(1-\frac{26(000)}{62(000)})$ OR $(100 \times)(1-0.419)$ or $(100 \times)(1-0.42)$	M1	
58(.06…%) or 58.1(%)	A1	If no marks award SC1 for an answer of 41.9(3…%), allow 42(%) from evaluation of 26000/62000 × 100 but not from trials.
(b) 52000000 ÷ (16 + 9) × 16 33 280 000	M1 A1	Allow a place value slip in 52 000 000 for M1 only Allow 33 000 000 and 33 300 000
	(5)	

#9

Component 2: Foundation Tier	Mark	Comment
(a) 540 × 4 or 540 ÷ 90 × 360 oe = (£) 2160	 M1 A1	 Candidates may work out the amount of money for each sector and sum them. This is awarded the mark provided the whole method is correct. e.g. • 540 + 270 + 270 + 360 + 720 • 1° = £6 with 90 × 6 + 45 × 6 + 45 × 6 + 60 × 6 + 120 × 6
(b) $\frac{120}{360}$ × 2160 oe or 540 × 4 ÷ 3 oe = (£) 720	 M1 A1	 FT 'their 2160' provided ≠ 540 Allow M1 only for 2160 × 0.33(..) unless 720 given as the answer. FT
(c) 0.15 × 360 oe = 54(°) (with comparison to 45(°))	 M1 A1	
Alternative method 1 $\frac{45}{360}$ oe *= 0.125 (with comparison to 0.15)*	 *M1* *A1*	
Alternative method 2 $\frac{45}{360}$ *(x 100)* oe *= 12.5(%)(with comparison to 15(%))*	 *M1* *A1*	
Alternative method 3 *A method for comparing two fractions with common denominators e.g.* $\frac{15 \times 3.6}{100 \times 3.6}$ $= \frac{54}{360}$ *(with comparison to* $\frac{45}{360}$*)*	 *M1* *A1*	 *Do not allow comparison* $\frac{1}{8}$ *with* $\frac{3}{20}$*.* *They must have a common denominator.*
	(6)	

#10

Component 2: Foundation Tier	Mark	Comment
(a)(i) November	B1	
(a)(ii) 22 (°C)	B2	B1 for 34 – 12 or for a correct evaluation of 34 – a where $11 \leq a \leq 13$ or b – 12 where $32 \leq b \leq 34$
(a)(iii) June	B1	
(b) 1.8 × 25 + 32 = 77 (°F)	M1 A1	May be seen in stages. If no marks, award SC1 for sight of 45 (from 1.8 × 25)
	(6)	

#11

Eduqas Autumn 2019 C2 Foundation Tier		Comments
(a)(i) (dog) 16 AND (Bird) 12 completed into the table. Draws a bar with height 4 squares and width 2 squares.	B2 B1	B1 for 16 or 12 or for any indication that the vertical axis is 2 pets to each square.
(a)(ii) Dog	B1	
(b)(i) 75°	B2	B1 for sight of 360 × 10 ÷ 48 or 7.5 or 0.2083(3…) or equivalent (e.g. 20.83%)
(b)(ii) 17/48 or equivalent	B1 (7)	ISW

#12

Component 2: Foundation Tier	Mark	Comment
(a) 200 × 2.80 + 180 × 1.35 = (£) 803	M1 A1	560 + 243 May be seen in stages. If no marks, award SC1 for one of the following: • A correctly evaluated total cost provided one of 200 or 180 is correct. • 560 and 243 both calculated correctly but not added. • An answer of 774 (from 200 × 1.35 + 180 × 2.80)
(b) 7 : 5	B2	B1 for sight of an equivalent ratio not fully simplified e.g. 35:25 B0 for 350:250 If no marks, award SC1 for 5 : 7
(c) $\frac{180}{180+220}$ (× 100) oe = 45 (%)	M1 A1	$\frac{180}{400}$ (× 100) If no marks, award SC1 for one of the following: • A correctly evaluated percentage provided one of 220 or 180 is correct. • An answer of 55(%) (percentage of hot drinks)
(d) A correct explanation that refers to the vertical scale e.g. 'The scale does not start at zero, (so luxury hot chocolates sales are not double standard hot chocolate sales).' 'Standard hot chocolates are around 45 and luxury hot chocolate sales are around 55, (they are not double).' 'There are only around 10 (to 15) more luxury hot chocolates.' 'It would be around 90 luxury hot chocolates sold and it's just over 50.'	E1	Allow e.g. 'The bars show that it is double, but the numbers don't.' Do not allow e.g. 'The numbers on the scale are not equally spaced.' 'Gaps are not consistent (on the vertical scale).' 'Not an accurate (vertical) scale.' 'We don't know how much of each was sold.' 'The chart doesn't show how many were sold.' 'It doesn't have many numbers.' 'The numbers are not clear on the scale.' 'Doesn't show exact sales.' 'Vertical axis is wrong.'
	(7)	

#13

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	Comment
(a)(i) 40	B1	
(a)(ii) 15 (%)	B1	
(a)(iii) 155 or 154.8 54	B2	Allow B2 for 154.8 and 54.2 B1 for each angle or for two angles that sum to 209
(a)(iv) Correct line drawn	B1	±2° FT for correct use of either of 'their 155' or 'their 54' If labels are present, they must be correct
(b) 360 ÷ 45 × 6 oe 48 and Ricky indicated	M1 A1	May be seen in stages e.g. 8 × 45 = 360 and 8 × 6 = 48 FT 'their 40' from part (a)(i) for the decision
Alternative method *Jon: 2 hours is 18°* *1 hour is 9°* *or* *Ricky: 6 hours is 45°* *2 hours is 15°* *5 hours is 45° and Ricky indicated* *or* *2 hours is 15° compared with 2 hours is 18° and Ricky indicated*	*M1* *A1*	
	(7)	

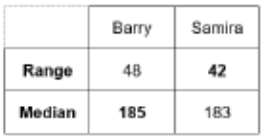
#14

Eduqas Summer 2018 C2 Foundation Tier	Mark	Comment
(a) All angles drawn correctly Y7: 54 | Y8: 72 | Y9: 81 | Y10: 90 | Y11: 63 All sectors labelled correctly	B3 B1	Allow tolerance of ±2° for all angles, Allow B3 if 5th angle is outside this tolerance B2 for 3 angles drawn accurately or for all angles calculated correctly, OR B1 for 2 angles drawn accurately or for 3 or 4 angles calculated correctly. Ignore any additional sectors created. SC2 for a pie chart with five correct sectors from their calculated angles, with labels correct. SC1 for a pie chart with 3 or 4 correct sectors from their calculated angles, with labels correct.
(b)(i) Indicates "yes" AND states or implies that the angle or area for German students is double that of Spanish. E.g. '160(o) is 2 x 80(o)'	E1	
(b)(ii) Indicates "Cannot tell" AND explains that we don't know how many students are at the schools.	E1	Allow "no" with correct explanation.
(b)(iii) 120 ÷ 80 x 48 or 48 + ½ x48 = 72 (students)	M1 A1 (8)	

#15

Eduqas Summer 2018 C2 Foundation Tier	Mark	Comment
(a) 2016	B1	
(b) 7:6	B2	B1 for 63:54 Or B1 for 'their 63:54' correctly simplified. SC1 for an answer of 6:7
(c) 41 x 2500 or 54 x 2150 54 x 2150 - 41 x 2500 Or 41 x 2500 – 54 x 2150 13600(p) or (£)136 (£)136 AND spent more in 2015	M1 M1 A1 A1	Accept equivalent work in £ FT 'their 41' and 'their 54' provided that one is correct Digits '136' implies M2, for example 1.36 CAO. Allow -13600(p) or –(£)136 FT 'their 136' Do not accept place value errors
(d) 0.2 x 50(p) + 50 or equivalent = 60(p)	M1 A1 (9)	Or equivalent full method.

#16

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	Comment
(a)(i)  	B2	B1 for one correct
(a)(ii) Samira because range is smaller	B1	FT their table Allow e.g 'Samira as her distances are less spread out (than Barry)' 'Samira as the numbers are closer together' Do not allow e.g 'Samira, her miles are more consistent'
(b)(i) 3405 × 12 or 40 000 ÷ 12 40 860 (>40 000) or 3333(.33…) (< 3405)	M1 A1	Accept 3400 × 12 Allow equivalent calculations using distance per day. Accept 40 800 Allow 40 900 and 41 000 from correct working.
(b)(ii) Relevant assumption e.g. 'She has assumed that the month was typical.' Or 'She has assumed that she will drive the same distance each month' Correct effect of assumption e.g. 'If other months were busier, she would drive further.'	E1 E1	Do not accept 'there are 12 months in a year' Dependent on the assumption mark being awarded. Allow both the assumption and explanation written here.
	(7)	

Interpreting Timetables: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	3	
#3	5	
Total	11	

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Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) 11:01	B1	Any clear notation; may be identified in table
(b) Attempts to find 11:25 – 10:32 53 (minutes)	M1 A1	May be in steps; allow for sight of 28 and 25 (minutes) If M0 then SC1 for an answer of 44 mins (from summing the 2 train journeys)

#2

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) 12:15	B1	Any clear notation; may be clearly identified in table; ignore am or pm if also stated; allow e.g. 12:15 – 13:14
(b) Finds time between 08:40 and 09:34 and adds 15 minutes or finds time between 08:40 and 09:49 69 (minutes) ISW	M1 A1	May be in stages; must be an attempt to find the difference, which may be by counting on; may not be fully correct If finding time between 08:40 and 09:49: 09 49 may be incorrect but must see e.g. 09 34 + 15 mins = 'their 09 49' to allow M1 in this case May be implied by e.g. 1 hour – 6 minutes + 15 or 20 + 34 + 15 or 29 + 25 + 15 or 8.40 + 1 h = 9.40 + 9 m = 9.49 with at least one of hours or mins indicated in the calculation Sight of times only is not sufficient. An answer of 1 hour and 9 minutes without sight of 69 minutes implies M1 If no marks award SC1 for a final answer of 54 minutes
	(3)	

#3

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) 73 (minutes)	B2	ISW if 73 minutes seen and spoilt (e.g. converting to hours and minutes). B1 for one of the following: • 1 hour 13 minutes • 1·13 • 1:13 • working to calculate the difference between 19:48 and 21:01 in minutes e.g. 12 + 60 + 1 OR 60 + 13 B0 for 113 (minutes) or 1 hour 53 minutes from 21.01 – 19.48 = 1·53.
(b) 4 (minutes)	B3	B2 for correct arrival time at the event (19:49 or 7:49) B1 for selecting the correct train (18:43 or 6:43). Allow if unambiguously seen in table. May be implied by an answer of '8 minutes early' or appropriate sight of 19:37 or 7:37. If no marks, award SC1 for a final answer of 37 minutes (from the use of 19:18 train).
	(5)	

Averages and Range: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
#2	3	
#3	3	
#4	4	
#5	4	
#6	8	
Total	24	

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Marking Scheme

#1

Component 1: Foundation Tier	Mark	Comment
(a) 12, 13, 14, 14, 17 OR 12, 14, 14, 15, 17 OR 12, 14, 14, 16, 17	B2	Ages can be in any order for B2 B1 for a correct interpretation of the range or mode si e.g. eldest child 17 indicated and no child younger than 12 given (range) or more than 1 child aged 14 indicated and no other mode (mode)

#2

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
Five numbers which satisfy all three conditions. 2, 3, 3, 5, 7 or 2, 2, 3, 6, 7 or 3, 3, 3, 3, 8	B3	May be seen in any order. Five numbers must be given, otherwise B0. Check the conditions carefully if the numbers are not listed in ascending order. B1 for a range = 5. B1 for a total = 20. B1 for a median = 3. Penalise −1 the use of 0, negative or non-integer values.
	(3)	

#3

	Mark	Comment
(a)(i) 2.1 (hours)	B1	
(a)(ii) 1.7 (hours)	B1	
(a)(iii) $\frac{4}{12}$ oe, ISW	B1	

#4

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) Carmen indicated with valid explanation e.g. 'The range is smaller'.	E1	
(b) 12	B3	B1 for (15 + 12 + 13 + 13 =) 53 and B1 for $5 \times 13 = 65$ or for $\frac{53+\ldots}{5} = 13$ or $5 \times 13 - 53$ seen
	(4)	

#5

Component 1: Foundation Tier	Mark	Comment
$5 \times 4.2 - (3.6 + 3.4 + 2.9 + 5.1)$ oe	M2	May be in stages M1 for total mass = 5×4.2 (= 21) or for $\frac{3.6+3.4+2.9+5.1+\ldots}{5} = 4.2$ oe
6 (kg)	A2	A1 for sight of 21 or for correct answer to 'their derived 21' – 'their 15' provided at least M1 awarded.
	(4)	

#6

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a)(i) 10	B1	
(a)(ii) 14 + 15 + 22 + 21 + 12 + 18 (= 102) 102 ÷ 6 17	M1 m1 A1	or e.g. 12 + 14 + 15 + 18 + 21 + 22 FT 'their 102' CAO
(b)(i) 619, 3600, 4658, 12212	B1	Allow place names/abbreviations in the correct order (Pinestow, Elmvale, Copley, Tanham); If figs and place names stated, answer line takes precedence
(b)(ii) $(4700 - 3600) \div 4$ 275	M2 A1	M1 for sight of 4700 – 3600 If no marks, award SC2 for sight of (4700 – 619) ÷ 4 and answer 1021 or (4700 – 4658) ÷ 4 and answer 11 or SC1 for sight of (4700 – 619) ÷ 4 or (4700 – 4658) ÷ 4
	(8)	

Averages and Range: Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
#2	5	
#3	5	
#4	6	
#5	7	
Total	25	

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Marking Scheme

#1

Eduqas Autumn 2018 Component 2: Foundation Tier	Mark	Comment
Two unique possible reasons: • Didn't use raw data • Insufficient data	 E1 E1 (2)	E1 for any 1 possible reason Didn't use raw data includes, e.g. • 'median is (actually) 65(.15 cm)' • 'used rounded results' • 'depths were to the nearest 10 cm' Insufficient data includes, e.g. • 'needs to take more readings of depth' • 'only recorded at one time of the day' • 'may only have taken readings near the banks of the river' If the actual median is calculated it must be correct or approximately 65 (cm) *Depths recorded in order are 30, 50, 60, 80, 90, 100*

#2

Component 2: Foundation Tier	Mark	
(a) 19	B2	B1 for the two middle numbers unambiguously indicated 13 15 <u>17 21</u> 23 31
(b) The correct five numbers in any order 13 17 21 23 31	B3	B2 for any of the following: • 120 – 105 or 15 identified • 105 and at least two trials of the sum of 5 cards • At least two trials finding the mean of any 5 of the numbers correctly B1 for one of the following: • A trial finding the mean of any 5 of the numbers correctly • 21 x 5 or 105
	(5)	

#3

Component 2: Foundation Tier	Mark	Comment
The five correct numbers listed 21, 22, 23, 29, 29	B4	Check the conditions carefully if the numbers are not listed in ascending order B1 for each of the following: • The median of five numbers is 23. • The mode is 29 • The difference between the smallest and largest numbers is 8 If the boxes are used, they take precedence (unless clearly replaced).
124 (miles)	B1	FT from B2 or B3 provided five numbers are used
	(5)	

#4

Component 2: Foundation Tier	Mark	Comment
(a) 9	B2	Answer box takes precedence B1 for 6 + 1.5 × 2 or 7.5 + 1.5 or for sight of 15
(b) 9.5 × 4 – 8 × 3 = 14	M3 A1	 May be seen in stages M2 for 9.5 × 4 (= 38) AND 8 × 3 (= 24) M1 for 9.5 × 4 (= 38) OR 8 × 3 (= 24) M1 or M2 can be implied by examples showing three numbers with a total of 24 or four numbers with a total of 38. e.g. 12 + 9 + 3 = 24 or 11 + 6 + 5 +16 = 38 Award M3 A1 for an unambiguous embedded answer. e.g. 14 as the 4th card within an example 12 + 9 + 3 = 24 with 12 + 9 + 3 + 14 = 38
	(6)	

#5

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	Comment
(b)(i) 5	B1	
(b)(ii) 47	B2	B1 for indicating e.g. between 65th and 66th data point; allow 65th or 66th or 130 ÷ 2 = 65 or 131 ÷ 2 = 65.5 for B1
(b)(iii) (45×7)+(46×24)+(47×35)+(48×37)+(49×18)+(50×9) ÷ 130 47.4(7…)	M1 m1 A1	seen or implied by e.g. 6172 or a list of products with a clear attempt to sum Allow 47.5 or 47 from correct working
(b)(iv) 48 and yes indicated	B1	FT 'their mean' from (b)(iii) for the decision made

Properties of Populations from a Sample: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
Total	3	

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Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(Proportion of tagged fish in sample is) $\frac{10}{100}\left(=\frac{1}{10}\right)$ or equivalent or (Proportion of sample tagged is) $\frac{10}{50}$ or equivalent	M1	Allow for e.g. '10 tagged out of 50'
$\frac{10}{50}=\frac{100}{500}$ or $\frac{10}{100}=\frac{50}{500}$ or 20% (of population) is 100 (fish) or equivalent	M1	Implies the first M1; allow for e.g. '100 tagged out of 500'; allow $\frac{100}{x}=\frac{10}{50}$ or $\frac{50}{x}=\frac{10}{100}$ or equivalent to score M1 M1
500 (fish) and do not allow fishing ticked or indicated	A1	CAO
	(3)	

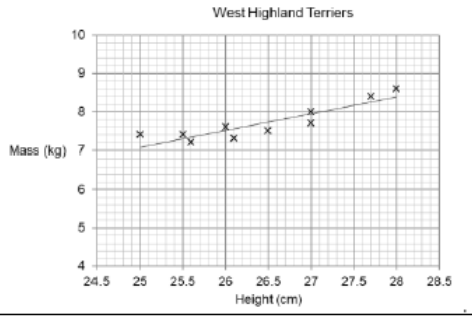
Scatter Diagrams: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	4	
#3	4	
#4	4	
#5	4	
#6	4	
#7	6	
Total	29	

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Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) Correct line of best fit	B1	Following trend with some points above and below 
(b) Answer in the range 7.5 to 8 (kg)	B1	Or FT their line for an answer outside this range
(c) No with valid reason e.g. 'It is too tall' or 'A dog of mass 8.2 kg should have a height of about 27.5 cm'	E1	Allow e.g. 'For a dog of 35 cm, 8.2 kg is not heavy enough.' or 'Its height does not match its weight.' Allow e.g. 'It is too far off the line of best fit.' provided B1 has been awarded in (a).
	(3)	

#2

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) 6 points plotted correctly	B2	and no extra plots B1 for any 4 or 5 points plotted correctly and not more than 6 points plotted in total or for 6 points plotted correctly with at most 2 extra incorrect plots
(b) Valid comment e.g. 'It has a positive correlation' or 'As number of wet days in Anstown goes up, so does the number of wet days in Beeham.'	B1	Do not allow e.g. 'It rains more in Anstown than it does in Beeham.' or 'It is positive.'
(c) 4	B1	FT 'their scatter graph'
	(4)	

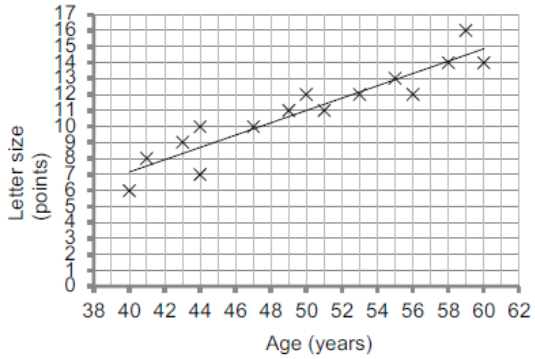
#3

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) Valid explanation e.g. 'Correlation does not imply causation.' or 'The manager has confused correlation with causation.' or 'Something else may have made the number of hats and hot drinks increase together, such as the weather getting colder.'	E1	Allow e.g. 'Both increased over 10 days but not because of each other' or 'The graph does not provide evidence that one has caused the other, there could be a common cause for the two.'
(b)(i) Correct line of best fit drawn	B1	Following trend with points above and below; must be ruled
(b)(ii) Answer in the range 28 to 33	B1	FT 'their line of best fit'
(b)(iii) Valid comment e.g. 'It will give a negative number of drinks.' or 'It may not be very accurate as there is not much data.' or 'Even though the correlation is negative, you cannot be sure of the pattern.' or 'Other things may influence the sale of the drinks besides the weather so it may not be very accurate.' or 'It is outside the data given.'	E1	Do not accept 'Not suitable at all' without justification. Accept comments that imply e.g. the relationship is not linear. Allow e.g 'It is only based on findings from 10 days' or 'There are no drinks sold around 17' Do not allow e.g. 'Not suitable as not enough information'
	(4)	

#4

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) (245 – 230 =) 15	B1	
(b)(i) Joe indicated and valid explanation based on sample size e.g. 'A bigger sample should give more reliable results.'	E1	Allow for Joe indicated and 'It would give a bigger sample.' or 'It uses all the data.' or 'Joe's method uses both sets of data' or 'The higher the number you have the more likely you will get a more accurate result' or 'Meera's method would use a smaller sample.' or 'Meera would not be using all the data.' or 'Joe adds them together.' or 'Joe uses the total number (of plants).' Do not allow e.g. 'It is the average.' or 'It would be more accurate.' or 'It would be better' or 'It would be more reliable.' NB Meera indicated scores E0
(b)(ii) (60 + 70) × 40 ÷ 2 oe 2600	M1 A1	130 × 20 If no marks award SC1 for (60 + 70) ÷ 2 oe
	(4)	

#5

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) Correct, ruled, single line of best fit drawn, passing through the point (50, 11)	B2	Must have some points above and some points below the line and follow the trend of the data; if more than one line is drawn, mark the worst; must extend at least from age 42 to 58, may be longer but not shorter; For B2 or B1: **if a point is plotted** at (50, 11) mark **clear** intent to pass through (50, 11), **if no point plotted** must pass exactly through this point; B1 for a ruled, single line of best fit with some points above and some points below the line and following the trend of the data and extending at least from age 42 to 58 but not passing through (50, 11) or a ruled, single line of best fit with positive gradient passing through (50, 11) but not fitting criterion for points above and below and/or trend and/or length 
(b)(i) Between 11 and 13 inclusive	B1	If not in this range allow FT of 'their line of best fit' providing it is an attempt at a single line, ruled or unruled; allow answers in this range even if no line drawn; allow decimal answers; allow FT values to be rounded or truncated to the nearest integer
(b)(ii) No indicated and a valid reason e.g. 'There is no data for 30 years old' or 'Younger people often have better eyesight than older people.'	E1	Any reason that indicates Jared is outside the data set e.g. Accept: 'His age is not on the scatter graph.' Allow: 'The lowest age on the graph is 38' or '30 wasn't listed'. Do not accept 'Different ages, vision can vary between people.' (too vague) Allow extra irrelevant comments providing they are not contradictory.
	(4)	

#6

Component 1: Foundation Tier	Mark	Comment
(a) Valid reason e.g. • 'for a fair comparison' • 'to do the survey the same way' • 'so that the leaves are measured consistently'	E1	Do not allow 'to measure accurately'.
(b)(i) Asif, with a valid reason e.g. • 'Asif's results have correlation (in his graph)' • 'There is no correlation between (length and width in) David's graph'	E1	Allow: • 'there is a trend in Asif's results' • 'there is not a trend in David's results' • 'Asif's leaves follow a pattern (but David's don't)' E0 for: • 'his results are closer together' • 'his graph was more consistent' • 'his results are similar/the same'
(b)(ii) Suitable line of best fit drawn	B1	Do not accept: • a line clearly just joining the first point to the last point. • a 'corner to corner' line
(b)(iii) Width in the range 7 to 9 cm	B1	Strict FT from their positive line of best fit. Tolerance +/- 0.1.
	(4)	

#7

	Mark	Comment
(b)(i) Plot at (0.7, 2.5) circled	B1	
(b)(ii) Correct plots at (1.8, 1.9) and (2.2, 2.4) only	B2	B1 for one correct plot; ignoring extra plots
(b)(iii) 0.6 (second run) or 0.8 (third run) identified	B1	si
$(0.8-0.6)\times 60$ or 48 – 36 or 2×6 (minutes) oe	M1	FT 'their difference' provided one value correct;
12 (minutes)	A1	CAO If no marks then SC1 for $(2.5-2.2)\times 60$ leading to 18 minutes

Scatter Diagrams: Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
#2	3	
#3	4	
Total	9	

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Marking Scheme

#1

Component 2: Foundation Tier	Mark	Comment
(a) Valid criticism e.g. 'There are no points above the line.' 'There should be some points above and below the line.' 'It does not follow the trend of the data.'	E1	Allow e.g. 'She has just joined the first point to the last.' 'It is not through the middle of the points.' 'It is not in between all the points.' Do not allow e.g. 'The line is in the wrong place.' 'It does not go through many points.'
(b) No indicated and valid comment e.g. 'Correlation does not imply causation.' or 'There could be another reason such as owning a dog for example would mean you took more exercise.'	E1	Allow e.g. 'There is no relationship between them, it is just a coincidence.' 'Owning a pet has nothing to do with going to the doctors.'
	(2)	

#2

Component 2: Foundation Tier	**Mark**	**Comment**
(a)(i) 2.4	B1	
(a)(ii) 60	B1	
(b) A valid conclusion e.g. 'The wider the river the bigger its depth.' 'The wider the river is, the deeper it is.' '(There is a) positive correlation (between the depth and width of this river).'	E1	Allow e.g. 'The deeper the river the wider it goes.' 'When it's at a high depth, the river width increases.' Do not allow e.g. 'It is positive.' 'The further the river goes the deeper it becomes.' 'As they are going further out, the river gets deeper.' 'The river is always more wide than deep.'
	(3)	

#3

Component 2: Foundation Tier	Mark	
(a) Correctly plotting all 5 points	B2	And no extra plots B1 for any 3 or 4 points plotted correctly and not more than 5 points plotted in total or for 5 points plotted correctly with at most 1 extra incorrect plot
(b) Point (0.5,38) indicated	B1	
(c) A valid comment e.g. 'The more hours of exercise someone does, the lower their **resting** heart rate'. 'The less exercise someone does, the higher their **resting** heart rate'. 'There is a negative correlation'.	B1	Do not allow e.g. 'It is negative'. 'The heart rate is lower when you exercise'. 'After each hour of exercise, the resting heart rate drops'. 'As exercise increases, bpm decreases' 'The more exercise someone does, the lower their bpm'. 'The less exercise someone does, the higher their bpm'.
	(4)	

Designing / Criticising Questionnaires: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	1	
#2	2	
#3	2	
#4	2	
#5	4	
#6	4	
Total	15	

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Marking Scheme

#1

Component 1: Foundation Tier	Mark	Comment
(b) Any suitable explanation, e.g. • 'The boxes overlap' • 'I don't know which box to tick if I've had 2 injuries'	E1	

#2

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
Two distinct valid criticisms based on sample size of 10 and sampling only one year group e.g. • 'She needs to ask more than 10 pupils' • 'She needs to ask pupils from other year groups'.	E2	E1 for one valid criticism. Allow E2 if two criticisms are stated in one answer space, with the second answer space blank or containing a non-contradictory criticism e.g. 'she needs to ask more pupils from other year groups'. Allow unambiguous implication e.g. • 'she only asked Year 7' • 'she only asked 10 pupils' Do not allow • 'she should have asked the whole school' • 'year 7 have only been in school for one year' • 'it is biased'
	(2)	

#3

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
An appropriately worded question with an appropriate set of response options e.g. 'Which method do you use most often to learn about recent national political events? Social Media Newspaper Radio Other None'	B2	Question must include at least 'recent' or 'national' as well as 'politics' or 'political events' and at least 4 response options, covering a full range of answers, including e.g. 'other' or 'none' B1 for an appropriately worded question or for an appropriate set of response options
	(2)	

#4

Component 1: Foundation Tier	Mark	Comment
No indicated and two distinct valid reasons based on sample size/time/location/bias. e.g. • 'She needs to ask more than 15 people'. • 'She needs to vary the time that she asks people, not just go to one meeting'. • 'People at the drama group will probably go more often'.	E2	No may be clearly implied by two valid reasons without contradiction. E1 for either: • one valid reason, • two valid reasons, but with Yes indicated. Allow E2 if two reasons are stated in one answer space, with the second answer space blank or containing a non-contradictory reason. Allow • 'she's only asking 15 people', • 'she's only asking people in her drama group', • 'maybe not everyone in her drama group is from her town'. Do not allow 'she hasn't asked everyone in her town'.
	(2)	

#5

GCSE (9-1) Mathematics Component 1: Foundation Tier	**Mark**	**Comment**
(a) Two distinct reasons based on sample size, location, time or bias. e.g. 'She needs to ask more than 20 people.' or 'She needs to vary the time that she asks people' or 'People at the bus station may be biased against cars'	E2	E1 for each valid reason; reasons need to be distinct; comments made regards time could be 'hours spent' or 'time of day' or 'days of the week attended' and these can be considered as distinct Allow e.g. 'It's only the first 20 people.' (sample size) or 'People might have to get on the bus.' (location) or 'It will be all school children at that time of day.' (time or bias) Do not allow e.g. 'People might lie' or 'People might not want to talk.'
(b) Two distinct criticisms based on time frame **and** response boxes. e.g. 'She has not said per day, per week etc' or 'The times are too vague' or 'There is nowhere to answer if you do not have a car' or ' 4 is repeated'	E2	E1 for each valid criticism; criticisms need to be distinct (one comment only on response boxes and one on time frame omitted) Allow e.g. 'It is not specific enough.' (BOD time) or 'People might not have a car.' (Response boxes)
	(4)	

#6

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) An appropriately worded question e.g. How much do you spend each month on gym membership? AND An appropriate set of response boxes e.g. c =£0, £0 < c ≤ £10, £10 < c ≤ £20, c > £20 less than £10, £10-£20, more than £20	B2	Question must include 'each month', There must be a **minimum of 3 response** boxes which: • do not overlap • cover all amounts including £0 and no upper limit with the exception of allowing a consistent £1 gap e.g. £0 £1 to £10, £11 to £20, £21 or more *Note: If inequalities are used then allow e.g.* *< 5, 5 - 10, 11 - 15, > 15* *OR 5 >, 5 - 10, 11 - 15, 15 <* *OR 0 ≤ 10, 11 ≤ 20, 21 ≤ 30, ≥ 31* *where the inequalities are in the correct directions and the groups are clear.* *Treat as one error incorrect use e.g.* *0 ≥10, 11 ≥ 20, 21 ≥ 30, 31 ≥* B1 for one of the following: • an appropriately worded question with no more than 'one identified error' from above response boxes. • a question that does not include 'per month' but with no errors in the response boxes.
(b)(i) Appropriate explanation e.g. 'The mean is affected by the few people who spent a long time (in the leisure centre).' 'The mean can be significantly affected by outliers or skew' 'It would be more accurate to use the mode' 'Most people spent less than 7 hours (in the leisure centre).' 'The modal time (or median time) is 0 – 4 hours.'	E1	Do not accept: 'The mean is not the best average.'
(b)(ii) Appropriate reason e.g. 'Not enough people asked.' 'Many responding 0-4 hours probably didn't go to the leisure centre'	E1	Do not accept: 'Some people spend longer than 24 hours' 'He only asked in one area' 'Only collected data for one week' 'They may spend different amounts of hours each week'
	(4)	

Designing / Criticising Questionnaires: Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	4	
Total	7	

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Marking Scheme

#1

Eduqas Autumn 2018 Component 2: Foundation Tier	**Mark**	**Comment**
(a) Appropriate reason given, e.g. 'only 20 people asked', 'should ask more people', 'teenagers may not be at the library at this time', 'we don't know what is meant by "too much"',	E1	Allow e.g.'teenagers who are at the library may not watch much TV'.
(b) Two criticisms from: 'no time period specified', 'it doesn't find out about the number of hours' ' 3 overlaps', 'no zero'	E2 (3)	Allow '9+ is too vague'

#2

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	
(a) Any two of the following: e.g. 1.Reason for suitability of the location. • 'Conducting the survey outside a travel agent is biased as people using a travel agent are likely to go abroad.' • 'She has only surveyed outside her local travel agent.' 2. Reason for suitability of the sample size. • '35 is **not a big enough sample** and is unlikely to be a true representation of the population.' 3. Reason for suitability of the time the survey is carried out. • 'Cara should conduct the survey at various times of the week/weekend not just Tuesday afternoon to ensure a full cross section of people are included.'	B2	B1 for one of the correct reasons Note: Two reasons may be given in one part of the answer space. Allow e.g. 'Regular travellers go to a travel agent.' 'The location is biased.' 'They will be booking holidays.' 'She is staying in one area.' 'Only asked 35 people.' 'Not enough people asked.' 'Most people book holidays at the weekend.' 'Most people work in the week.' 'It's only one afternoon.' 'Not everyone will use the travel agent on a Tuesday.' 'She is doing it once.' 'It's only a Tuesday afternoon.' Do not allow 'Biased.' 'It's a Tuesday afternoon.' 'Some people may not use a travel agency to book holidays abroad.' 'Some people may book online.' 'It's an odd number of people.'
(b) Two criticisms, one referring to the overlap in the option boxes and one about the missing time period in the question. e.g. '3 is in two boxes.' 'Wouldn't know where to tick for 3.' 'It doesn't specify a time period.' 'I'm not sure if its per year or five years etc.'	B2	B1 for one correct criticism Note: Two criticisms may be given in one part of the answer space. Allow e.g. 'Overlaps.' Do not allow 'The question is vague.' 'The question is not specific.'
	(4)	

Estimating the Mean from Grouped Frequency Tables: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	6	
Total	6	

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Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) Midpoints 5 15 25 35	B1	
5×10 + 15×12 + 25×16 + 35×12 (50 + 180 + 400 + 420) (= 1050)	M1	Only FT for 'their midpoints' provided at least 3 of them are at the bounds or within the groups If midpoints are **not** stated, award B1 M1 for 50 + 180 + 400 + 420 OR 1050 B1 M0 for 50,180,400 and 420 B0 M1 for the sum of 4 values with 3 correct
÷ 50	m1	
21	A1	FT correct evaluation using their midpoints. On FT, allow truncated answers or rounded to nearest whole number or better
(b) 40 (%)	B2	FT 'their 50' from (a) for B1 and B2 Do not allow 'their 50' = 100 B1 for sight of $\frac{12+\frac{16}{2}}{50}$ (×100) Allow B1 for 20 out of 'their 50' On FT the percentage must be given correct to the nearest integer or better for the award of B2
	(6)	

Estimating the Mean from Grouped Frequency Tables: Calculator

Question	Maximum Mark	Mark Awarded
#1	4	
#2	5	
#3	5	
#4	5	
#5	8	
Total	27	

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Marking Scheme

#1

Component 2: Foundation Tier	Mark	Comment
(a) (650 × 8 + 750 × 7 + 850 × 4 + 950 × 11) ÷ 30 810 (grams)	M1 m1 A1	(= 24300)
(b) Valid comment e.g. 'Her answer will be an underestimate.' 'She is using the lowest values so the mean will be too small'.	E1	Allow answers that state that the calculated mean will be smaller or indicate that the lowest values do not represent the groups, e.g. 'Her method will give a smaller mean.' 'Because these values do not represent the entire range.' 'Because she ignored the distribution in each interval.' 'Because she is using the minimum masses making at an unfair estimate.' Do not allow e.g. 'She has used the smallest value in each group.' 'Because these values are the lowest bounds.' 'Because it is not as accurate as the midpoints.' 'It is better to use the midpoints.'
	(4)	

#2

	Mark	Comment
(a) Mid points: 15, 25, 35, 45 15×5 + 25×20 + 35×23+ 45×52 (= 75 + 500 + 805 + 2340 = 3720) ÷100 37(.2mm)	B1 M1 m1 A1	 FT provided 'their midpoints' within the 'bounds' inclusive Unsupported 37.2, award all 4 marks
(b) 40 ≤ x < 50	B1 (5)	Accept any unambiguous indication

#3

Eduqas Summer 2018 C2 Foundation Tier	Mark	Comment
(a) Midpoints 10, 30, 50, 70, 90	B1	
1×10+8×30+9×50+7×70+6×90	M1	FT 'their midpoints' provided these are at the bounds or within the groups (10 + 240 + 450 + 490 + 540 = 1730)
÷ 31	m1	
55.8(…cm)	A1	Accept 56(cm) from correct working
(b) Argument presented to include that (some) other groups could have snowfall towards the lower end of the group, e.g. 'group 20 to 40 (cm) may have actual snowfall between 21 and 23 cm'	E1 (5)	Accept 'the mean changes by about 2(.3 cm), so still about the same' Allow, e.g. 'Would not impact on the mean much' Do not allow an argument presented saying 'do not know the actual snowfall for the other groups' Do not accept an argument based on the reason for using midpoints without further clarification

#4

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	
Mid-points: 75, 85, 95, 105, 115	B1	May be implied from correct totals, see below.
75 × 5 + 85 × 7 + 95 ×12 + 105 ×11 + 115 ×10	M2	FT 'their mid-points' provided at least 4 of these are at the bounds or within the groups 375 + 595 + 1140 + 1155 + 1150 (= 4415) M1 for the addition of five products allowing one error with the frequencies. If mid-points are **not** given, then no marks except for the following cases: • B1 M0 for five correct products not added • B1 M2 for five correct products in an addition • B0 M1 for four correct out of five products in an addition
÷ 45	m1	
$98\frac{1}{9}$ or $\frac{883}{9}$ or 98.1(1…) (seconds)	A1	FT provided M2 m1 awarded, for the correct evaluation using their mid-points Allow 98 from correct working. Allow truncated or rounded decimal FT answers.
	(5)	

#5

Eduqas Autumn 2019 C2 Foundation Tier		Comments
(a) 2.6 (cm)	B1	
(b) Mid points 2, 3, 4, 5, 6 2 × 4 + 3 × 2 + 4 × 1 + 5 × 0 + 6 × 3 ÷ 10 3.6 (cm)	B1 M1 m1 A1	FT 'their mid points' provided 4 lie within, including 'bounds', of the groups, allow 1 of the mid points is outside the group
(c) 5 × 4.7 + 23.9 ÷ 6 7.9 (cm)	M1 m1 A1 (8)	