

Eduqas GCSE Mathematics Foundation Tier

Algebra Revision Booklet

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



Table of Contents

1. Coordinates: Non-Calculator	1
2. Coordinates: Calculator	8
3. Simplifying Terms: Non-Calculator	12
4. Simplifying Terms: Calculator	15
5. Substitution: Non-Calculator	19
6. Substitution: Calculator	27
7. Function Machines: Non-Calculator	33
8. Function Machines: Calculator	40
9. Expanding Brackets: Non-Calculator	43
10. Expanding Brackets: Calculator	45
11. Factorising: Non-Calculator	49
12. Factorising: Calculator	51
13. Forming an expression: Non-Calculator	53
14. Forming an expression: Calculator	57
15. Solving an equation: Non-Calculator	64
16. Solving an equation: Calculator	68
17. Forming and solving an equation: Non-Calculator	74
18. Forming and solving an equation: Calculator	78
19. Solving Inequalities: Non-Calculator	82
20. Solving Inequalities: Calculator	85
21. Identities: Non-Calculator	89
22. Changing the subject: Non-Calculator	91
23. Changing the subject: Calculator	93
24. Sequences: Calculator	96
25. Nth term (linear sequence): Non-Calculator	102
26. Nth term (linear sequence): Calculator	104
27. Sequences (other): Non-Calculator	106
28. Factorising (Quadratic): Non-Calculator	108
29. Factorising (Quadratic): Calculator	110
30. Solving a quadratic equation: Non-Calculator	113
31. Solving a quadratic equation: Calculator	115
32. Difference between two squares: Calculator	117
33. Straight-line Graphs: Non-Calculator	119
34. Straight-line Graphs: Calculator	125
35. Parallel and Perpendicular Gradients: Non-Calculator	129
36. Quadratic Graphs: Non-Calculator	131
37. Quadratic Graphs: Calculator	134
38. Reciprocal Graphs: Non-Calculator	136
39. Identifying Types of Graphs: Non-Calculator	138
40. Distance-Time Graphs: Non-Calculator	140
41. Distance-Time Graphs: Calculator	143
42. Simultaneous Equations (Graphically): Non-Calculator	145

43. Simultaneous Equations (algebraic): Non-Calculator	149
44. Simultaneous Equations (algebraic): Calculator	151
45. Simultaneous Equations (forming and solving): Non-Calculator	154
46. Simultaneous Equations (forming and solving): Calculator	156

Marking Schemes

1. Coordinates: Non-Calculator	160
2. Coordinates: Calculator	163
3. Simplifying Terms: Non-Calculator	166
4. Simplifying Terms: Calculator	169
5. Substitution: Non-Calculator	173
6. Substitution: Calculator	178
7. Function Machines: Non-Calculator	181
8. Function Machines: Calculator	184
9. Expanding Brackets: Non-Calculator	186
10. Expanding Brackets: Calculator	188
11. Factorising: Non-Calculator	191
12. Factorising: Calculator	193
13. Forming an expression: Non-Calculator	195
14. Forming an expression: Calculator	199
15. Solving an equation: Non-Calculator	203
16. Solving an equation: Calculator	207
17. Forming and solving an equation: Non-Calculator	212
18. Forming and solving an equation: Calculator	215
19. Solving Inequalities: Non-Calculator	217
20. Solving Inequalities: Calculator	220
21. Identities: Non-Calculator	223
22. Changing the subject: Non-Calculator	225
23. Changing the subject: Calculator	227
24. Sequences: Calculator	229
25. Nth term (linear sequence): Non-Calculator	233
26. Nth term (linear sequence): Calculator	235
27. Sequences (other): Non-Calculator	237
28. Factorising (Quadratic): Non-Calculator	239
29. Factorising (Quadratic): Calculator	241
30. Solving a quadratic equation: Non-Calculator	243
31. Solving a quadratic equation: Calculator	245
32. Difference between two squares: Calculator	247
33. Straight-line Graphs: Non-Calculator	249
34. Straight-line Graphs: Calculator	252
35. Parallel and Perpendicular Gradients: Non-Calculator	254
36. Quadratic Graphs: Non-Calculator	256
37. Quadratic Graphs: Calculator	258
38. Reciprocal Graphs: Non-Calculator	260
39. Identifying Types of Graphs: Non-Calculator	262
40. Distance-Time Graphs: Non-Calculator	264
41. Distance-Time Graphs: Calculator	266
42. Simultaneous Equations (Graphically): Non-Calculator	268

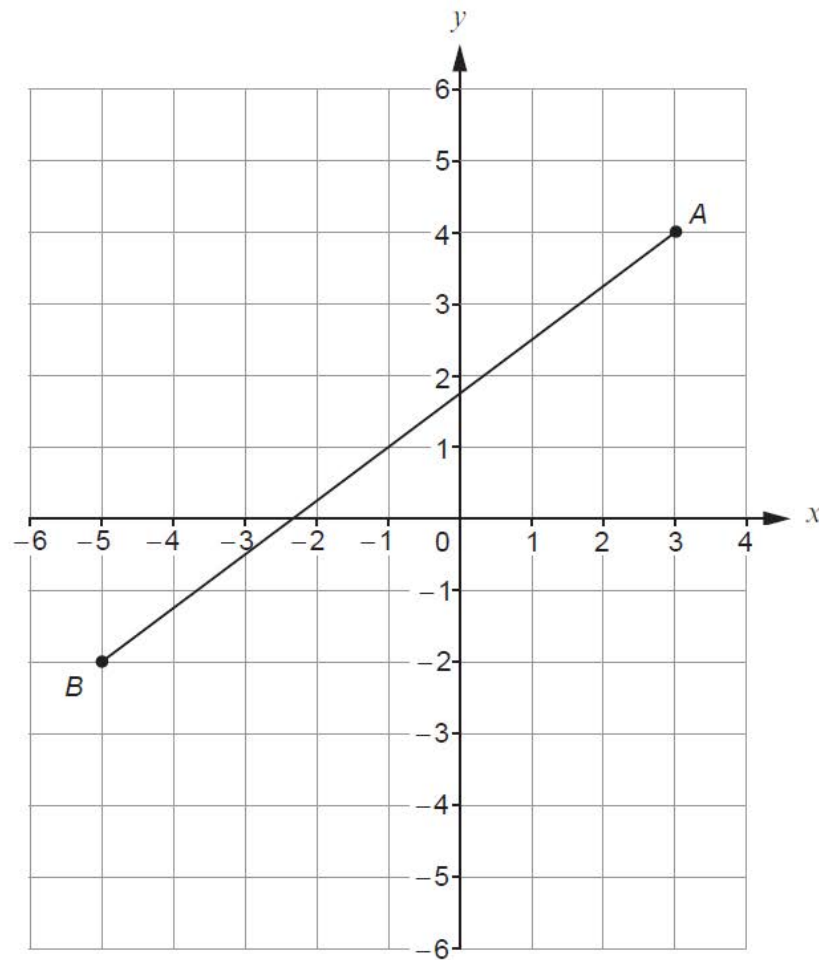
43. Simultaneous Equations (algebraic): Non-Calculator	270
44. Simultaneous Equations (algebraic): Calculator	272
45. Simultaneous Equations (forming and solving): Non-Calculator	274
46. Simultaneous Equations (forming and solving): Calculator	276

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.

Coordinates: Non-Calculator

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

#1



The line AB is drawn on the 1 cm grid above.

- (a) (i) Write down the coordinates of A . [1]

A (..... ,)

- (ii) The point C is the mid-point of AB .

Mark the position of the point C on the grid. [1]

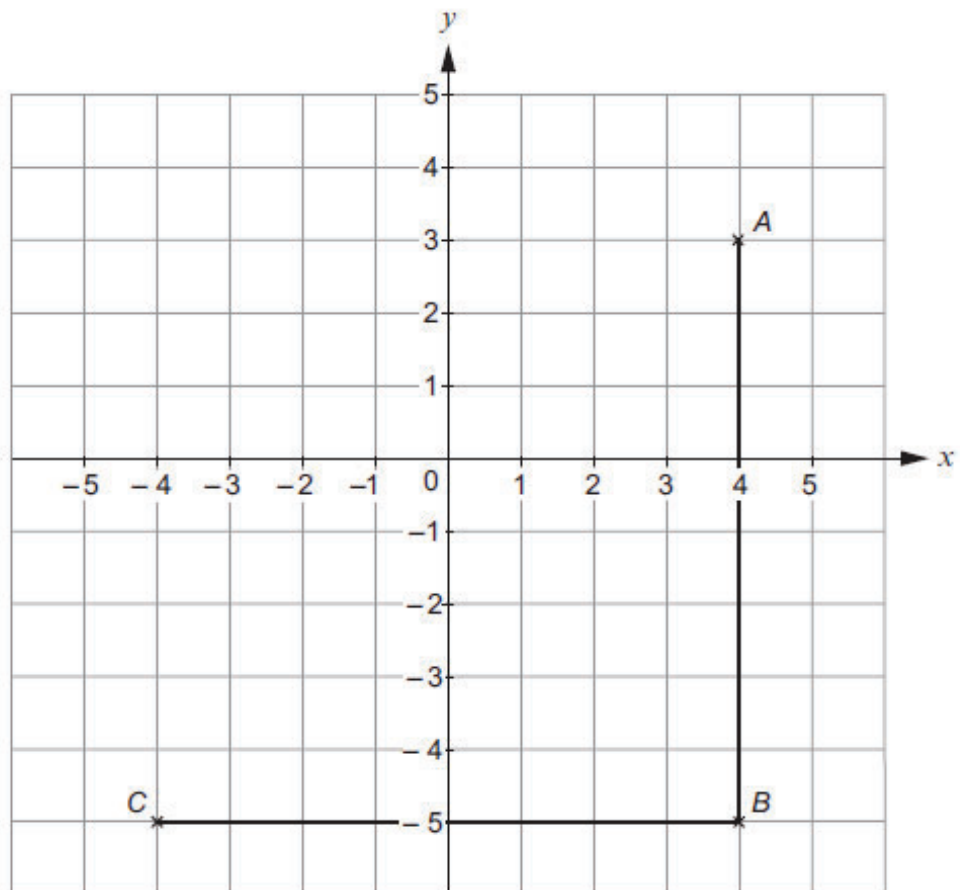
- (b) The line BD is parallel to the y -axis.
Triangle ABD is a right-angled triangle.

Mark the position of point D on the grid and write down the length of AD . [2]

Length AD = cm

Question taken from Eduqas examination paper 530001, June 2019

#2



Part of a square, $ABCD$, is drawn accurately on the 1 cm grid above.

(a) On the diagram, mark the position of D . [1]

(b) Write down the coordinates of D .

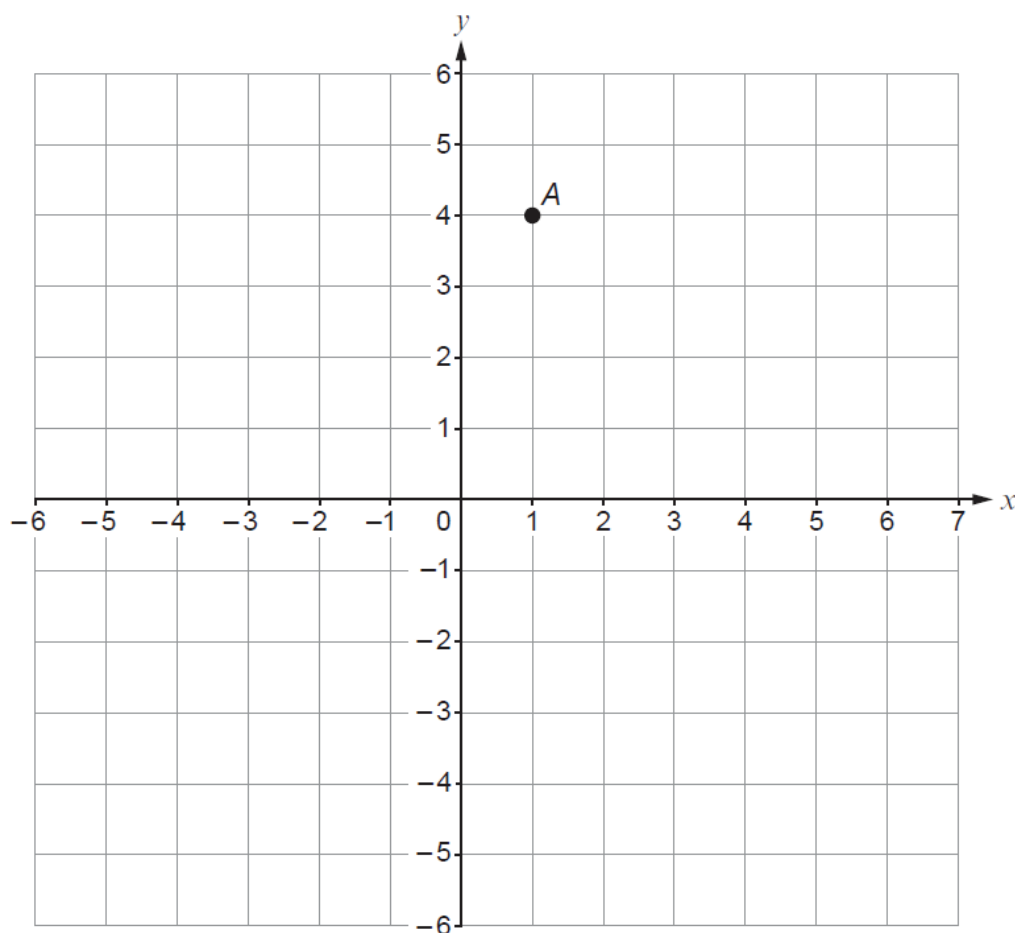
D (..... ,) [1]

(c) Work out the perimeter of the square $ABCD$.
You must state the units of your answer. [2]

.....
.....
Perimeter = units

Question taken from Eduqas examination paper 530001, November 2018

#3



(a) On the grid, plot the point $B(5, -2)$. [1]

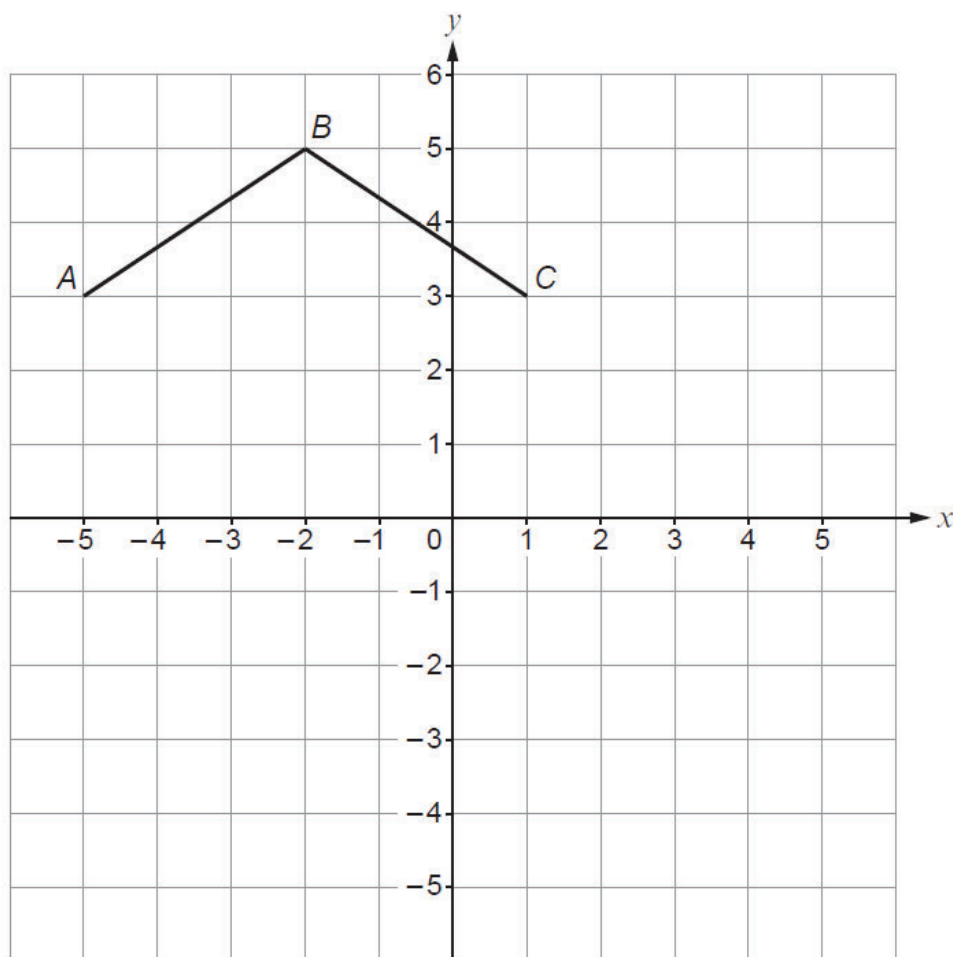
(b) ABC is a triangle with a right-angle at C .
Plot the position of the point C . [1]

(c) Find the coordinates of the midpoint of the line AB . [2]

Coordinates of the midpoint of line AB are (..... ,)

Question taken from Eduqas examination paper 530001, May 2024

#4



The diagram shows part of a kite, $ABCD$.
It is drawn on a 1 cm square grid.

- (a) Write down the coordinates of the point B .

[1]

(..... ,)

- (b) $ABCD$ has one line of symmetry.
The length of BD is 6 cm.

Mark the position of point D on the grid and measure the length of CD .

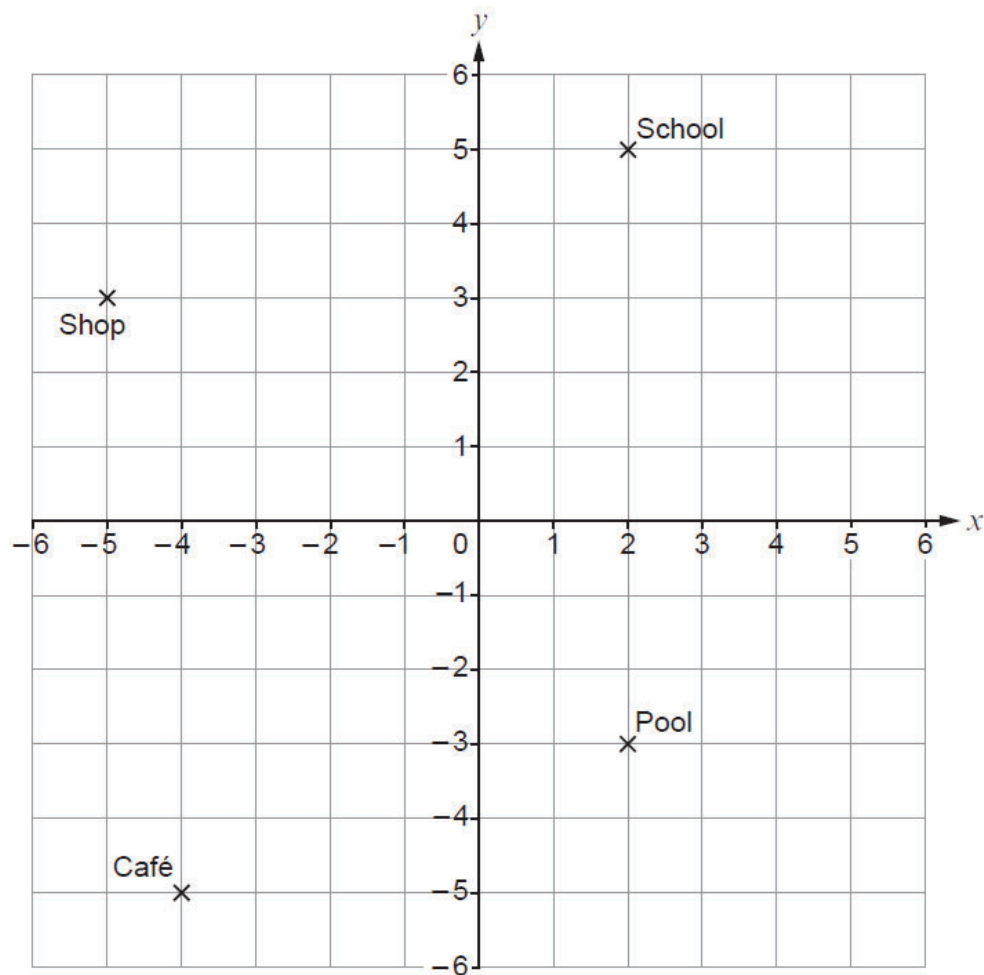
[2]

Length of CD = cm

.....
.....

Question taken from Eduqas examination paper 530001, May 2022

#5



The diagram is drawn on a 1 cm square grid.
It shows the location of some places in a town.

- (a) Write down the coordinates of the shop.

Shop (..... ,)

[1]

- (b) There is a bus stop (B) half-way between the café and the pool.

Mark the position of the bus stop on the diagram.

[1]

- (c) The scale of the diagram is 1 cm represents 50 m.
There is a straight path from the school to the pool.

How long is the actual path?
Give your answer in metres.

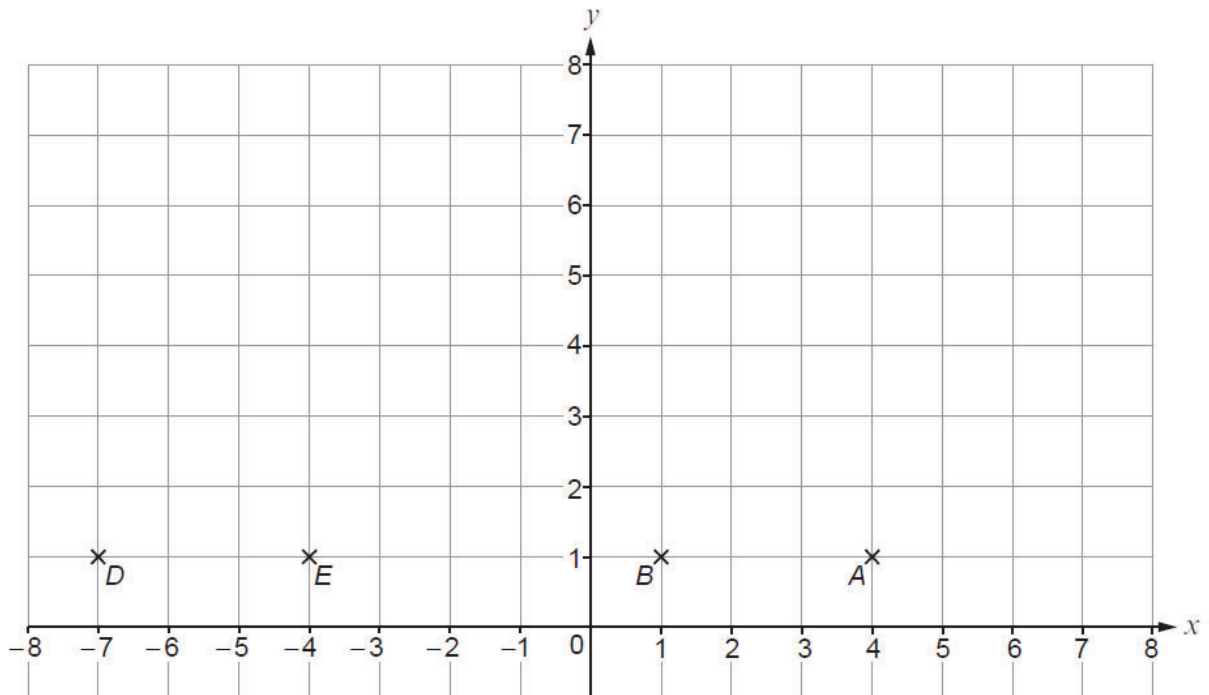
[2]

.....
.....

Question taken from Eduqas examination paper 530001, May 2023

#6

The points A , B , D and E have been marked on the 1 cm grid below.



(a) Write down the coordinates of E .

[1]

E (..... ,)

(b) (i) ABC is a triangle with the following properties.

- Angle ABC is a right angle.
- The length of BC is twice the length of AB .

Mark and label the position of C on the grid.

[2]

(ii) D and E are two vertices of a triangle DEF .
Triangle DEF is congruent to triangle ABC .

Mark and label the position of F on the grid.

[1]

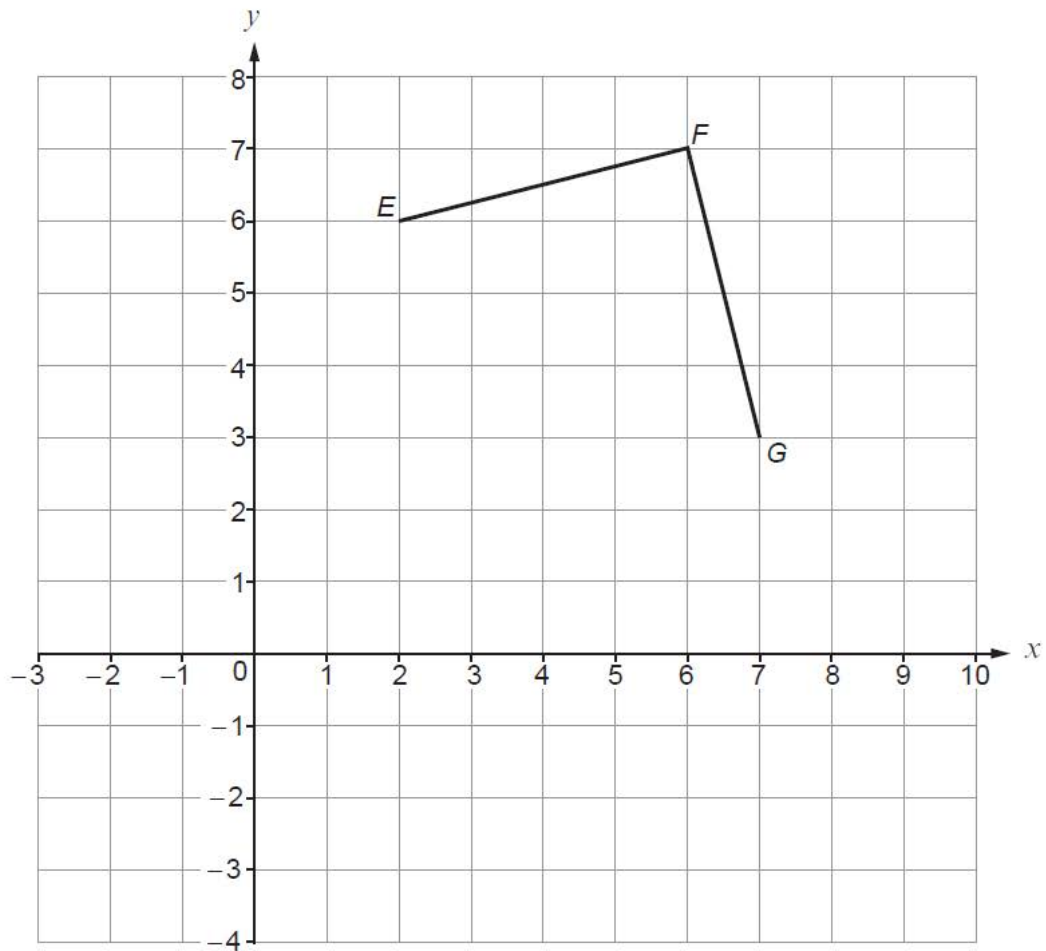
Question taken from Eduqas examination paper 530001, November 2021

Coordinates: Calculator

Question	Maximum Mark	Mark Awarded
#1	4	
#2	4	
#3	4	
Total	12	

#1

Two sides of a square $EFGH$ are shown on the 1 cm grid below.



- (a) Point H of the square is missing from the diagram.
Mark point H on the diagram.
Write down the coordinates of point H .

[2]

(..... ,)

- (b) Point J is the reflection in the y -axis of point E .
Mark point J on the diagram.
Write down the coordinates of point J .

[2]

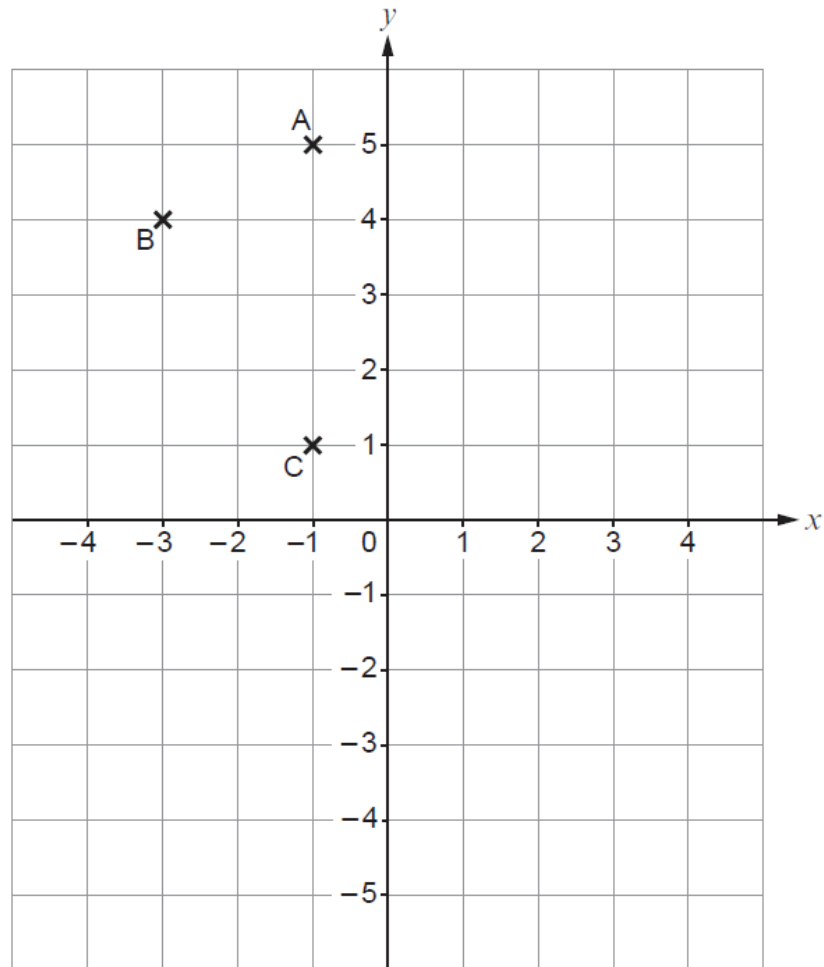
(..... ,)

Question taken from Eduqas examination paper 530002, November 2019

#2

ABCD is a kite.

Three of its vertices have been plotted on the grid below.



(a) Plot point D on the grid to complete the kite. [1]

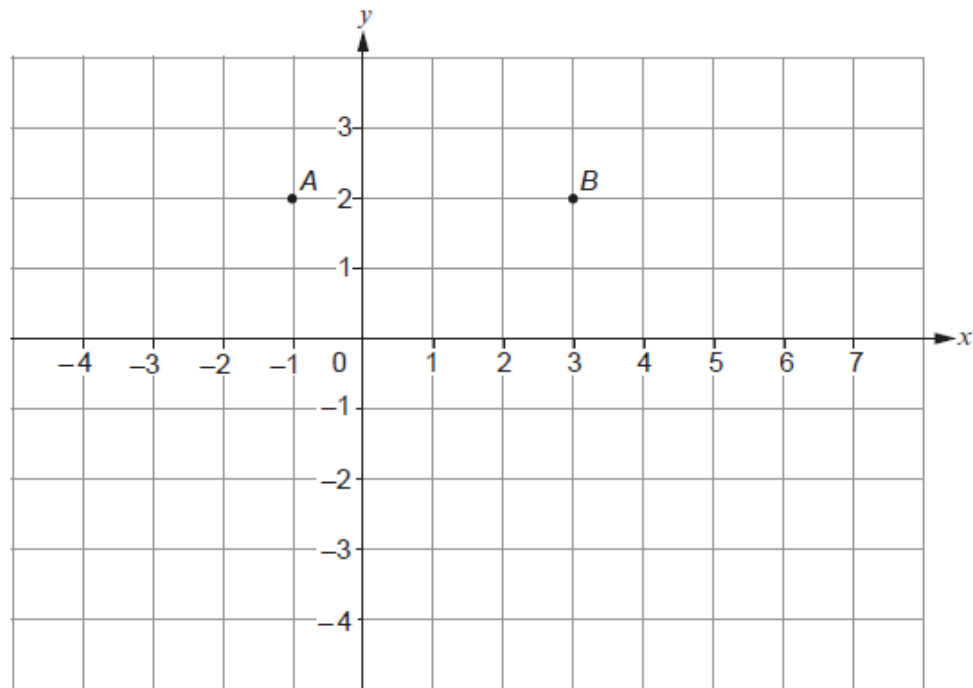
(b) Write down the coordinates of point D. [1]

D = (..... ,)

(c) Draw a reflection of the kite ABCD in the x axis. [2]

Question taken from Eduqas examination paper 530002, November 2023

#3

Points A and B are shown on the 1 cm grid below.

- (a) $ABCD$ is a rectangle with area 20 cm^2 .

Mark the points C and D on the grid.

[2]

.....

.....

- (b) (i) B is the midpoint of AE .

Mark the point E on the grid.

[1]

- (ii) Write down the coordinates of the point E .

[1]

.....

.....

.....

E is the point (.....,

Question taken from Eduqas examination paper 530002, November 2020

Simplifying Terms: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
#2	2	
#3	6	
#4	3	
Total	13	

#1

- (a) Simplify
- $4 \times w \times 3 \times y$
- .

[1]

.....

- (b) In each of the spaces below, write a term to make the statement correct.

[1]

$$f + \text{.....} - \text{.....} = 6f$$

Question taken from Eduqas examination paper 530001, May 2024

#2

- (b) Simplify
- $2w \times 2w \times 3w$
- .

[2]

.....

.....

Question taken from Eduqas examination paper 530001, November 2024

#3

- (a) Simplify each of the following.

(i) $3x - 2y + x - 7y$

[2]

.....

.....

(ii) $7(x + 2) - 5$

[2]

.....

.....

(iii) $\frac{4x \times 5x}{2}$

[2]

.....

.....

Question taken from Eduqas examination paper 530001, November 2020

#4

(a) Simplify

(i) $2a - b + 5a - 3b,$

[2]

.....

.....

(ii) $1 + 4 \times c \times c.$

[1]

.....

.....

Question taken from Eduqas examination paper 530001, June 2019

Simplifying Terms: Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
#2	1	
#3	3	
#4	2	
#5	2	
#6	2	
#7	3	
#8	1	
#9	2	
#10	2	
#11	3	
Total	23	

#1

(a) Simplify $4x^3y^5 \times 7x^2y$.

[2]

Question taken from Eduqas examination paper 530002, November 2024

#2

(a) Simplify $-8x + 5x - x$.

[1]

Question taken from Eduqas examination paper 530002, November 2024

#3

(a) Simplify each of the following.

(i) $a + 7b + 5a - 9b$

[2]

(ii) $6w \div 2w$

[1]

Question taken from Eduqas examination paper 530002, November 2023

#4

(a) Simplify $4(x + 6) + 3x$.

[2]

Question taken from Eduqas examination paper 530002, June 2023

#5

(d) Simplify $5f + 16f \times 7$.

[2]

Question taken from Eduqas examination paper 530002, June 2024

#6

(b) Simplify $(3h^2)^3$.

[2]

Question taken from Eduqas examination paper 530002, June 2024

#7

(a) Simplify each of the following.

(i) $w \times w$

[1]

(ii) $7x - 4 + x + 3$

[2]

Question taken from Eduqas examination paper 530002, November 2021

#8

(a) Simplify $10a \div 2$.

[1]

Question taken from Eduqas examination paper 530002, November 2022

#9

(a) Simplify $5f + 6g + 3f - 9g$.

[2]

Question taken from Eduqas examination paper 530002, June 2022

#10

(a) (i) Simplify $9a - 1 - 6a + 8$.

[2]

Question taken from Eduqas examination paper 530002, November 2019

#11

(a) Simplify $a + 14a + 8a$.

[1]

(b) Sadie has simplified the following expression.

$$6a + 12b - 4a + 15b.$$

Her answer is $2a - 3b$.

Is she correct?

Yes

☐

No

☐

You must show all your working.

[2]

Question taken from Eduqas examination paper 530002, June 2018

Substitution: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	1	
#2	1	
#3	2	
#4	2	
#5	2	
#6	2	
#7	3	
#8	2	
#9	4	
#10	4	
#11	4	
#12	7	
Total	34	

#1

(b) Calculate the value of $4y$ when $y = -12$.

[1]

.....

.....

Question taken from Eduqas examination paper 530001, November 2023

#2

(b) Calculate the value of $-8x$ when $x = -3$.

[1]

.....

Question taken from Eduqas examination paper 530001, May 2024

#3

(b) The n th term of a different sequence is $2n^3 + 3$.
Write down the first 3 terms of this sequence.

[2]

.....

.....

.....

.....

Question taken from Eduqas examination paper 530001, June 2018

#4

The n th term of a sequence is given by $2n + 9$.

(a) Work out the difference between consecutive terms.

[2]

.....

.....

.....

Question taken from Eduqas examination paper 530001, May 2023

#5

- (b) (i) This formula converts a UK shoe size to a Japanese shoe size.

$$\text{Japanese size} = \text{UK size} + 19$$

Yuto wears a Japanese size 29.5.

What would Yuto's shoe size be in the UK?

[1]

.....

.....

- (ii) This table shows the equivalent shoe sizes used in the UK and the USA.

UK size	5	6	7	8	9
USA size	6	7	8	9	10

Complete this formula connecting the UK size and the USA size.

[1]

UK size =

Question taken from Eduqas examination paper 530001, June 2019

#6

- (b) (i) The n th term of a different sequence is $3(n^2 + 1)$.
Find the 10th term of this sequence.

[1]

.....

.....

.....

- (ii) Explain why 601 cannot be a term of this sequence.
Do not find any more terms.

[1]

.....

.....

.....

.....

Question taken from Eduqas examination paper 530001, November 2021

#7

- (d) Twowheels is a bike hire company.
Customers can hire bikes from Twowheels for a whole number of days.

The company uses the following formula to calculate its hire costs.

$$\text{Bike hire cost} = \text{£}20 + \text{£}15 \times \text{number of hire days}$$

Tom wants to hire a bike from Twowheels.

He has £150 to spend.

What is the greatest number of days for which Tom can hire a bike?

[3]

.....

.....

.....

.....

.....

.....

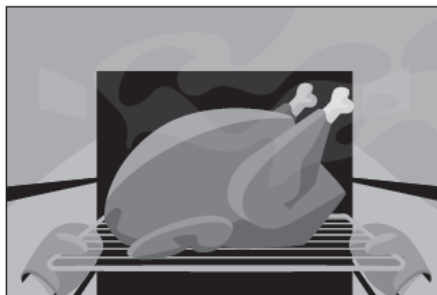
.....

.....

Tom can hire a bike for days

Question taken from Eduqas examination paper 530001, May 2024

#8



The recommended time taken to cook a turkey is given by the following formula.

$$\text{Time} = 20 \text{ minutes per kilogram} + 90 \text{ minutes}$$

Calculate the time taken to cook an 8 kg turkey.

[2]

.....

.....

.....

.....

Time taken = minutes

Question taken from Eduqas examination paper 530001, November 2024

#9

The cost, in £, of hiring fitness equipment is given by the formula:

$$\text{cost of hire} = \text{number of days hired} \times 5 + 25$$

- (a) Jen hires some fitness equipment for 9 days.

How much does Jen pay?

[2]

.....

.....

.....

.....

.....

Jen pays £

- (b) Peter pays £225 to hire some fitness equipment.

For how many days does Peter hire this equipment?

[2]

.....

.....

.....

.....

.....

.....

..... days

Question taken from Eduqas examination paper 530001, June 2018

#10

Ted is a salesman.
His pay is calculated using this formula.

$$\text{Ted's pay} = 100 + \frac{\text{value of Ted's sales}}{5}$$

- (a) One week the value of Ted's sales was £800.

What was Ted's pay for this week?

[2]

.....

.....

.....

.....

.....

Ted's pay £

- (b) The next week Ted's pay was £400.

What was the value of Ted's sales for this week?

[2]

.....

.....

.....

.....

.....

Value of Ted's sales £

Question taken from Eduqas examination paper 530001, November 2019

#11



A grill is large enough to cook 20 kebabs.

The following formula is used to calculate the amount of time, in minutes, it takes to prepare and cook kebabs on this grill.

$$\text{Time} = 2.5 \times \text{Number of kebabs} + 16$$

- (a) How long does it take to prepare and cook 10 kebabs?

[2]

.....

.....

.....

.....

- (b) How many kebabs can be prepared and cooked in 26 minutes?

[2]

.....

.....

Question taken from Eduqas examination paper 530001, May 2022

#12

The table shows the hourly pay for staff at Dibdales in 2016 and 2017.

		Hourly pay by age group			
		25 and over	21 to 24	18 to 20	Under 18
Year	2017	£8.50	£7.50	£6.00	£4.05
	2016	£8.00	£6.95	£5.55	£4.00

Each member of staff works for 30 hours per week and then overtime if needed.

The total weekly pay of staff at Dibdales is worked out using:

- Paid hours = $30 + (2 \times \text{number of overtime hours})$
- Total weekly pay = hourly pay $\times$ Paid hours

Paul, Janet and Sara all work at Dibdales.

- (a) Paul's hourly pay was £8.00 in 2016.
Paul does not work overtime.

How much more did Paul earn for a week in 2017 than he did for a week in 2016? [2]

.....

.....

.....

£ more

- (b) Janet was 19 in 2016.

How much did Janet earn for a week in 2017 when she worked 5 hours overtime? [2]

.....

.....

.....

£

- (c) One week during this 2-year period, Sara worked 5 hours overtime.
She earned £160.

In which year was this and in which age group was Sara at the time? [3]

.....

.....

.....

.....

Year Age group

Question taken from Eduqas examination paper 530001, November 2018

Substitution: Calculator

Question	Maximum Mark	Mark Awarded
#1	1	
#2	2	
#3	2	
#4	2	
#5	2	
#6	3	
#7	3	
#8	4	
#9	4	
Total	23	

#1

(c) Find the value of $15x$ when $x = -23$.

[1]

.....

.....

Question taken from Eduqas examination paper 530002, June 2019

#2

(c) $x = \frac{w(y+2)}{8}$

Find the value of x when $w = 3$ and $y = 24$.

[2]

.....

.....

.....

.....

.....

Question taken from Eduqas examination paper 530002, June 2023

#3

(c) Find the value of $6x + 3y$ when $x = 5.2$ and $y = 0.4$.

[2]

.....

.....

.....

Question taken from Eduqas examination paper 530002, June 2022

#4

(c) $v = u + at$

Find v when $u = -2$, $a = 6$ and $t = 3$.

[2]

Question taken from Eduqas examination paper 530002, November 2019

#5

- (b) The n th term of a different sequence is $4n - 5$.
Write down the first 3 terms of the sequence.

[2]

Question taken from Eduqas examination paper 530002, June 2024

#6

(b) Here is a formula.

$$v = \frac{k}{x}$$

(i) Find the value of v when $k = 3.15$ and $x = 1.4$.

[1]

.....

.....

$$v = \text{.....}$$

(ii) Find the value of k when $v = 12$ and $x = 26$.

[2]

.....

.....

.....

.....

$$k = \text{.....}$$

Question taken from Eduqas examination paper 530002, November 2021

#7

(b) Use the formula $S = 5R + 2T$ to find the value of R when $S = 28.5$ and $T = -4$.

[3]

.....

.....

.....

.....

.....

.....

Question taken from Eduqas examination paper 530002, November 2024

#8

The table shows some facts about electricity.

Fact	Formula
Power = Voltage x Current	$P = VI$
Voltage = Current x Resistance	$V = IR$
Charge = Current x Time	$Q = It$
Energy = Voltage x Charge	$E = VQ$

(a) Calculate V when $I = 2.5$ and $R = 0.7$.

[1]

.....

.....

(b) Calculate E when the Voltage is 240 and the Charge is 12.

[1]

.....

.....

(c) Calculate the Time when the Charge is 75 and the Current is 12.5.

[2]

.....

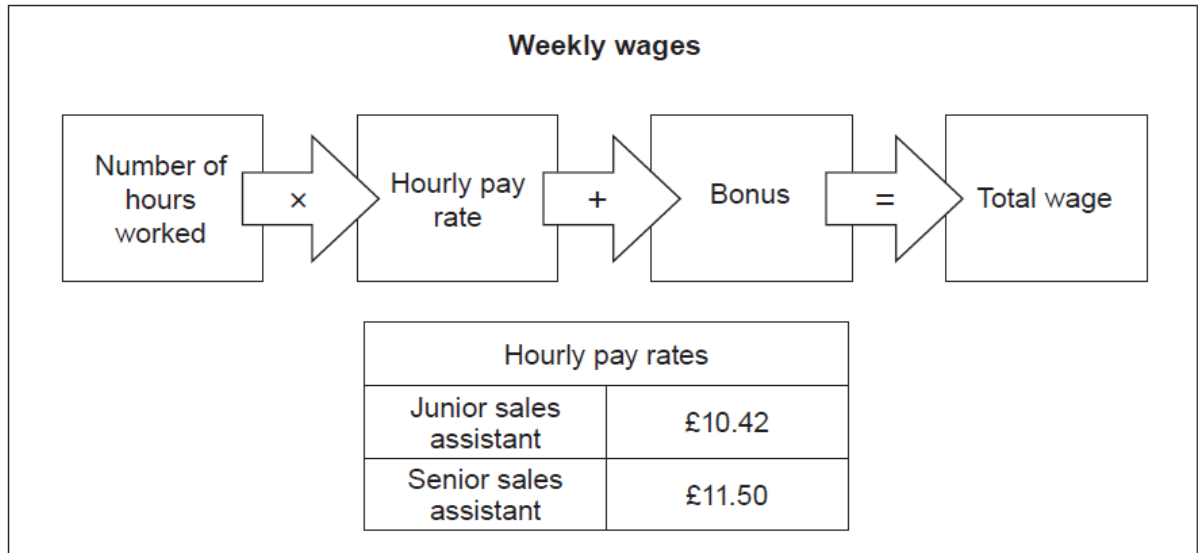
.....

.....

Question taken from Eduqas examination paper 530002, November 2018

#9

The manager of a shop calculates the wages of her staff at the end of each week. She uses this diagram.



- (a) Hamza is a junior sales assistant.
Last week he worked for 25 hours and had a bonus of £80.

What was Hamza's total wage last week?

[2]

.....

.....

.....

.....

- (b) Julie is a senior sales assistant.
Last week her total wage was £271 including a bonus of £64.

How many hours did Julie work last week?

[2]

.....

.....

.....

.....

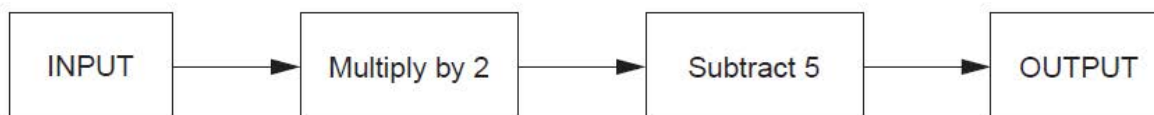
Question taken from Eduqas examination paper 530002, November 2023

Function Machines: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	4	
#2	4	
#3	4	
#4	2	
#5	8	
Total	22	

#1

(a) Here is a number machine.



- (i) The input is 10.
What is the output?

[1]

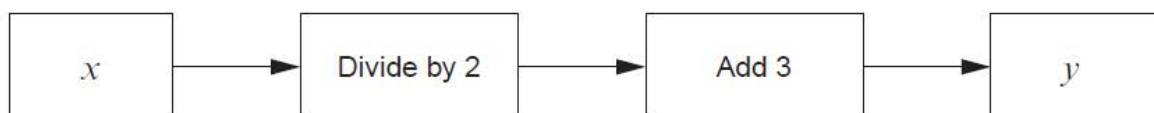
- (ii) The input is 4.5.
What is the output?

[1]

- (iii) The output is -3 .
What is the input?

[1]

(b) Here is a different number machine.



Circle the rule shown by this number machine.

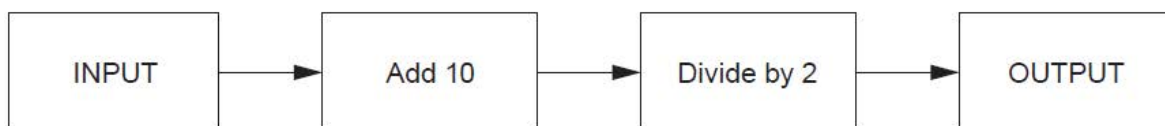
$2x - 3 = y$
 $\frac{x}{2} + 3 = y$
 $x = \frac{y}{2} + 3$
 $x = 2y - 3$
 $\frac{x+3}{2} = y$

[1]

Question taken from Eduqas examination paper 5300001, November 2019

#2

(a) Here is a number machine.



- (i) The input is 100.
What is the output?

[1]

.....

.....

- (ii) The input is -12 .
What is the output?

[1]

.....

.....

- (iii) The output is 6.5.
What is the input?

[1]

.....

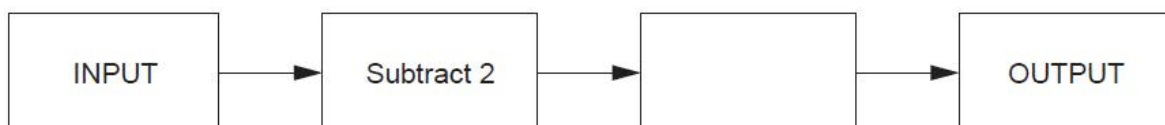
.....

- (b) The table shows some input and matching output values for a different number machine.
The number machine is given below.

Input	Output
18	4
51	7

Complete the number machine.

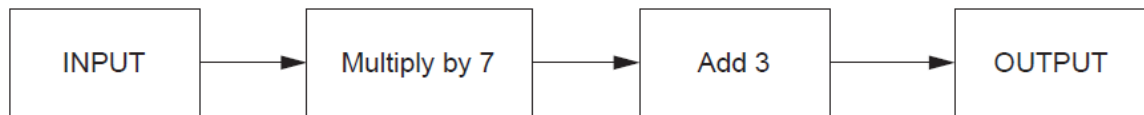
[1]



Question taken from Eduqas examination paper 5300001, June 2018

#3

(a) Here is a number machine.



- (i) The input is 6.
What is the output?

[1]

.....

.....

.....

- (ii) The input is $2x$.
Write an expression for the output.
Simplify your answer.

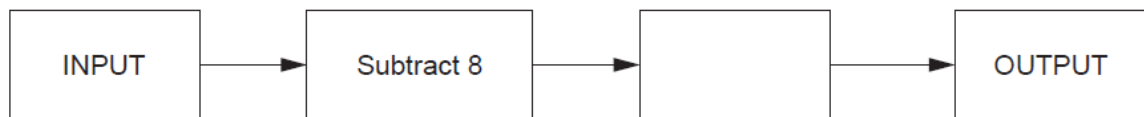
[2]

.....

.....

.....

(b) Here is a different number machine.



When the input is 12 the output is 0.4.

Complete the number machine.
You must use multiplication or division.

[1]

.....

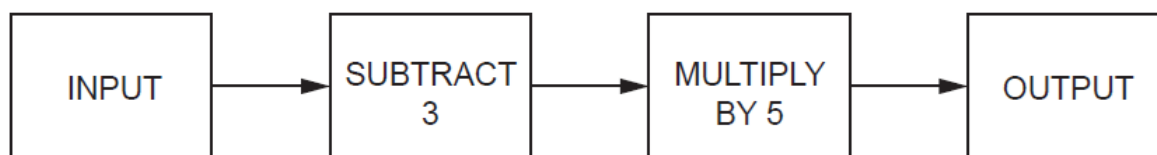
.....

.....

Question taken from Eduqas examination paper 5300001, November 2021

#4

Here is a number machine.



- (a) The input is 10.
What is the output?

[1]

.....

.....

.....

- (b) The output is 55.
What is the input?

[1]

.....

.....

.....

Question taken from Eduqas examination paper 5300001, November 2023

#5

(a) Here is a number machine.



- (i) The input is 45.
What is the output? [1]

.....

.....

.....

- (ii) The output is 0.9.
What is the input? [1]

.....

.....

.....

(b) This number machine can be used to find coordinates (x, y) .



- (i) Use the number machine to complete these coordinates. [3]

(2,) (0.5,) (-1,) (..... , 5)

.....

.....

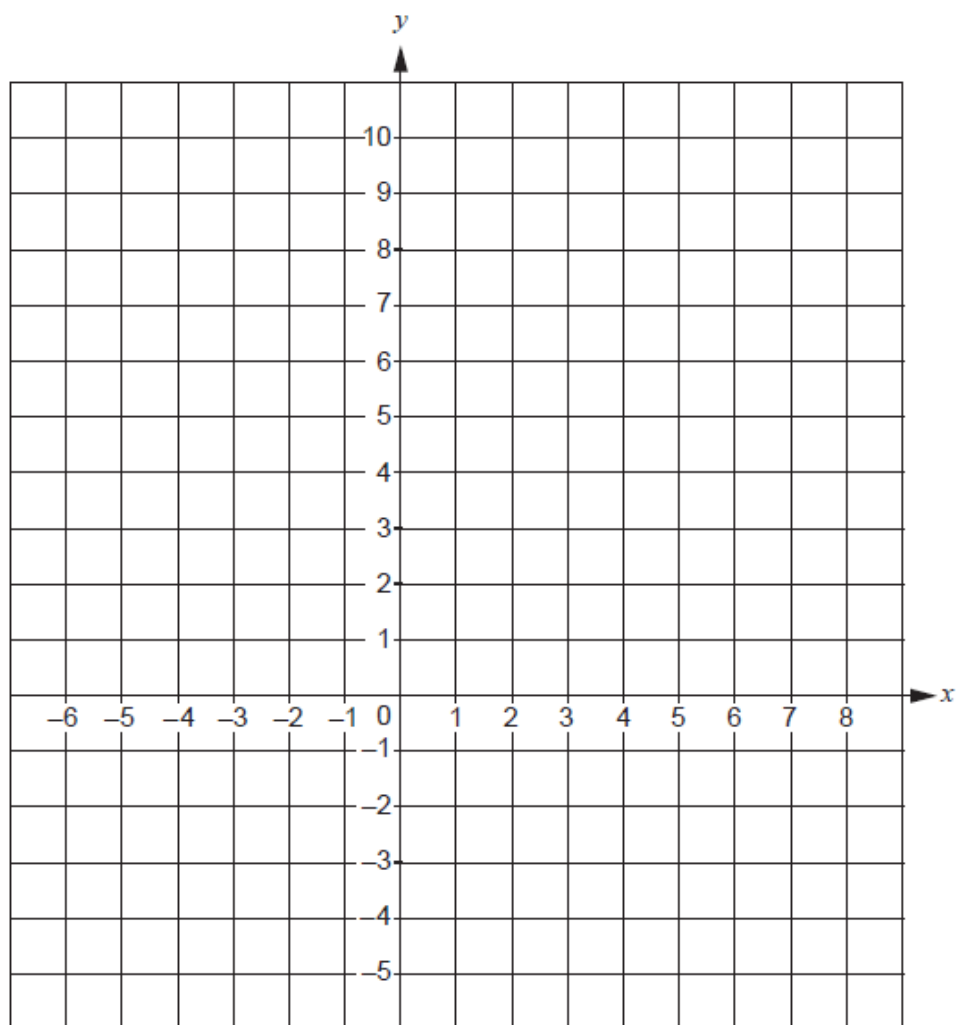
.....

.....

(ii) These coordinates can be used to draw a straight line.

Plot the coordinates found by the number machine and draw the line.

[3]



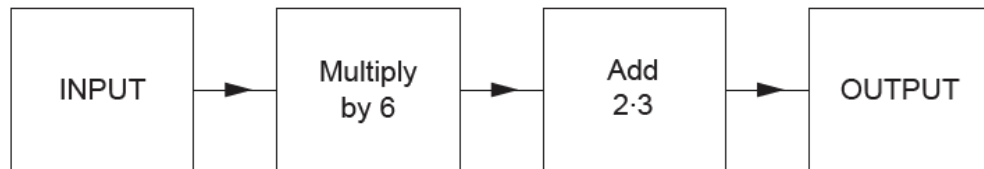
Question taken from Eduqas examination paper 5300001, November 2020

Function Machines: Calculator

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

#1

(a) The diagram below shows a number machine.



(i) When the INPUT is 8, what is the OUTPUT?

[1]

.....

.....

(ii) When the OUTPUT is 34.7, what was the INPUT?

[1]

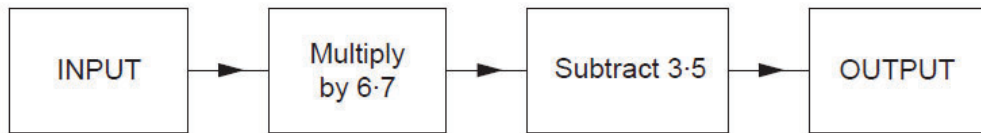
.....

.....

Question taken from Eduqas examination paper 530002, June 2023

#2

- (a) (i) The diagram shows a number machine.



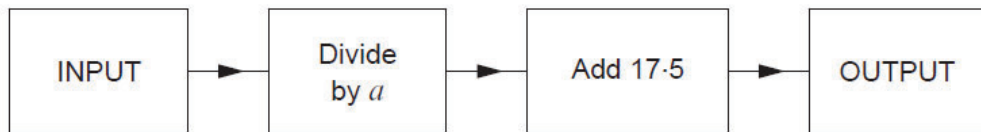
When the OUTPUT is 83.6 , what is the INPUT?

[1]

.....

.....

- (ii) A different number machine is shown below.



When the INPUT is 22 , the OUTPUT is 37.5 .
Find the value of a .

[2]

.....

.....

.....

.....

.....

.....

Question taken from Eduqas examination paper 530002, June 2024

Expanding Brackets: Non-Calculator

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

#1

(a) Expand and simplify $3(5a - 2) - 7(a - 4)$.

[2]

Question taken from Eduqas examination paper 530001, November 2024

#2

(c) Simplify $5w + 3(6w - 2)$.

[2]

Question taken from Eduqas examination paper 530001, November 2023

#3

(a) Expand and simplify $(4x + 5)(2x - 1)$.

[3]

Question taken from Eduqas examination paper 530001, May 2022

Expanding Brackets: Calculator

Question	Maximum Mark	Mark Awarded
#1	1	
#2	1	
#3	1	
#4	1	
#5	2	
#6	2	
#7	3	
#8	3	
#9	3	
Total	17	

#1

(e) Expand $8(9p - 3)$.

[1]

.....

Question taken from Eduqas examination paper 530002, June 2024

#2

(c) Expand $7(g - 6)$.

[1]

.....

Question taken from Eduqas examination paper 530002, November 2022

#3

(b) Expand $5(m - 3)$.

[1]

.....

.....

.....

Question taken from Eduqas examination paper 530002, June 2022

#4

(c) Expand $5(9 - 13y)$.

[1]

.....

.....

Question taken from Eduqas examination paper 530002, November 2024

#5

(a) Expand and simplify $(x+3)(x+7)$.

[2]

Question taken from Eduqas examination paper 530002, November 2023

#6

(ii) Expand $3(x+2)$.

[2]

Question taken from Eduqas examination paper 530002, November 2019

#7

(a) Expand and simplify $(x-6)(7x+5)$.

[3]

Question taken from Eduqas examination paper 530002, November 2021

#8

Expand and simplify $(2x-7)(3x-8)$.

[3]

Question taken from Eduqas examination paper 530002, November 2019

#9

(a) Expand and simplify $(x + 6y)(3x + 5y)$.

[3]

.....

.....

.....

Question taken from Eduqas examination paper 530002, June 2019

Factorising: Non-Calculator

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

#1

Factorise $3x^2 - 4xy$.

[1]

.....

.....

.....

.....

Question taken from Eduqas examination paper 530001, November 2020

#2

Factorise $3xy^2 + 6x^2y$

[3]

.....

.....

.....

.....

Question taken from Eduqas examination paper 530003, November 2023

#3

(a) Factorise $3a + 7ab$.

[1]

.....

Question taken from Eduqas examination paper 530001, May 2024

Factorising: Calculator

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

#1

(d) Factorise $6x + 4$.

[1]

.....

Question taken from Eduqas examination paper 530002, November 2022

#2

(d) Factorise $mt - 3t$.

[1]

.....

.....

Question taken from Eduqas examination paper 530002, November 2024

#3

(b) Factorise $y^2 + 2xy$.

[1]

.....

.....

.....

.....

.....

Question taken from Eduqas examination paper 530002, November 2021

Forming an expression: Non-Calculator

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

#1

- (a) Circle the expression that is the same as '4 more than
- y
- '.

[1]

$$y - 4 \qquad 4 + y \qquad \frac{4}{y} \qquad 4y \qquad \frac{y}{4}$$

Question taken from Eduqas examination paper 530001, May 2024

#2

- (d) A shirt has t buttons.
Write down, in terms of t , the number of buttons on 8 shirts.

[1]

.....

.....

Question taken from Eduqas examination paper 530001, November 2023

#3

- (b) (i) A can contains w ml of lemonade.
Taka drinks 15 ml of lemonade from the can.

Write an expression, in terms of w , for the amount of lemonade that is left in the can.

[1]

.....

.....

- (ii) In the first week of April, Johan made r bird boxes.
In the second week of April, Johan made half as many bird boxes as he did the week before.

Write an expression, in terms of r , for the number of bird boxes Johan made in the second week of April.

[1]

.....

.....

Question taken from Eduqas examination paper 530001, November 2020

#4

A small box of chocolates contains c chocolates.

A large box of chocolates contains 15 more chocolates than a small box.

Find an expression for the **total** number of chocolates in 3 small boxes and 1 large box.
You must simplify your answer.

[2]

.....

.....

.....

Total number of chocolates =

Question taken from Eduqas examination paper 530001, November 2018

#5

- (c) (i) One day Nick spent k minutes on his mobile phone.
Ellie spent 10 minutes less than Nick on her mobile phone.

Write an expression, in terms of k , for the number of minutes that Ellie spent on her mobile phone.

[1]

.....

.....

- (ii) A dress costs $£t$ pounds.
Write an expression, in terms of t , for the cost of the dress in pence.

[1]

.....

.....

Question taken from Eduqas examination paper 530001, November 2024

#6

Tomas sells small boxes of 6 eggs or large boxes of 10 eggs.

He sells x small boxes.

He sells 8 more of the large boxes than the small boxes.

- (a) Write an expression, in terms of x , for the number of large boxes he sells. [1]

.....

.....

- (b) Write an expression, in terms of x , for the total number of **eggs** he sells.
Give your answer in its simplest form. [3]

.....

.....

.....

.....

Question taken from Eduqas examination paper 530001, May 2022

#7

- (a) Small oranges cost x pence each.
Large oranges cost twice as much as small oranges.

Write an expression, in terms of x , for the total cost of 4 small oranges and 6 large oranges.

Give your answer in its simplest form. [3]

.....

.....

.....

.....

- (b) Lemons cost £ y for a bag of 4.

Write an expression, in terms of y , for the cost in **pence** of 1 lemon. [2]

.....

.....

.....

.....

Question taken from Eduqas examination paper 530001, November 2022

Forming an expression: Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
#2	4	
#3	2	
#4	3	
#5	4	
#6	3	
#7	3	
Total	21	

#1

Draw lines to match each expression with its description.
The first one has been completed for you.

[2]

$n + 2$	Two multiplied by a number.
$n - 2$	A number subtract two.
$2n$	A number divided by two.
$\frac{n}{2}$	A number multiplied by itself.
$2 - n$	Two subtract a number.
n^2	A number add two.

Question taken from Eduqas examination paper 530002, November 2018

#2

The shape below is made from two rectangles.
All the lengths are in cm.

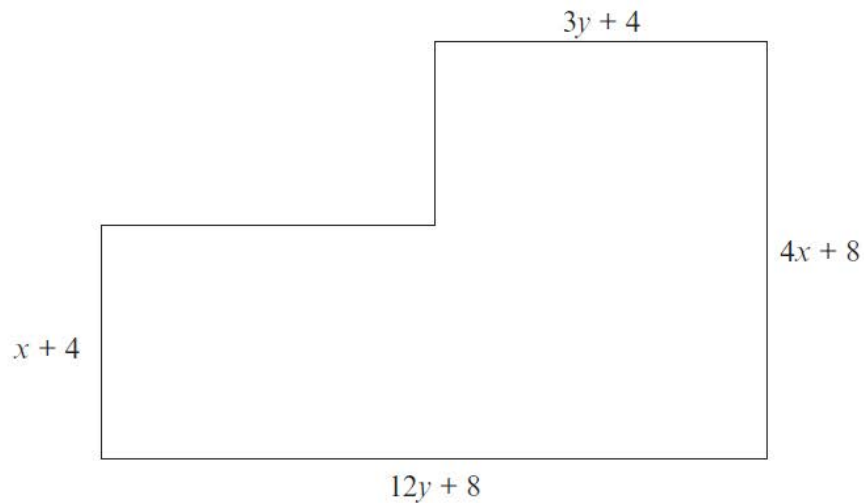


Diagram not drawn to scale

- (a) Write an expression for the perimeter of the shape.
Simplify your expression.

[3]

.....

.....

.....

.....

.....

.....

- (b) Use the highest possible number to complete the following sentence.

[1]

'The expression for the perimeter is a multiple of '

.....

.....

Question taken from Eduqas examination paper 530002, November 2019

#3

- (b) Amanda buys 5 bags of apples. Each bag contains n apples.
She gives away 2 apples from **each bag**.

Write an expression for the total number of apples Amanda has left.

[2]

.....

.....

.....

.....

Question taken from Eduqas examination paper 530002, November 2023

#4

- (b) The original price of a toy is $£t$.
In a sale, the toy is one third of its original price.
Write down, in terms of t , the sale price of the toy.

[1]

.....

- (c) A bag contains x sweets.
Rona buys 8 of these bags.
She also has 5 sweets left from a previous bag of sweets.
Write down, in terms of x , the total number of sweets Rona has.
Simplify your answer.

[2]

.....

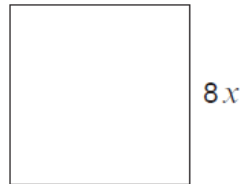
.....

.....

Question taken from Eduqas examination paper 530002, June 2024

#5

(e) The shape below is a square.

**Diagram not
drawn to scale**

- (i) Find an expression for the perimeter of the square.
Simplify your answer.

[2]

.....

.....

- (ii) Find an expression for the area of the square.
Simplify your answer.

[2]

.....

.....

Question taken from Eduqas examination paper 530002, November 2022

#6

- (e) The rectangle below has length y and width x .

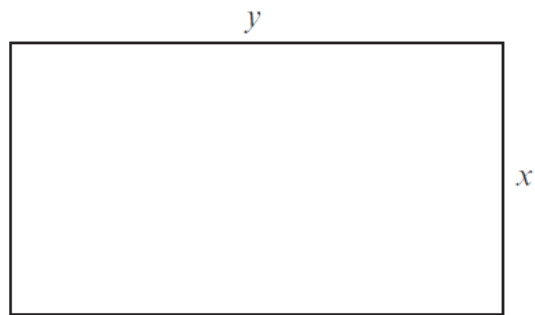


Diagram not drawn to scale

Three rectangles congruent to the one above are arranged, without overlapping, to create the large rectangle below.

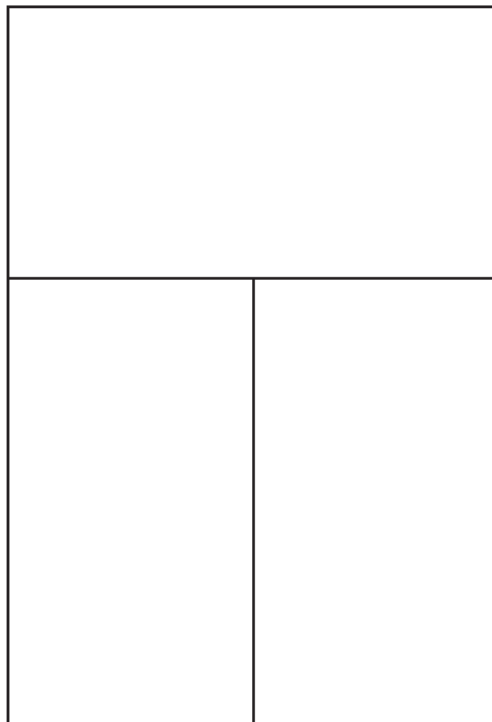


Diagram not drawn to scale

Find an expression for the perimeter of this large rectangle in terms of x .
Simplify your answer.

[3]

.....

.....

.....

Question taken from Eduqas examination paper 530002, June 2022

#7

(a) Shay has b books.

(i) Wilma has 5 fewer books than Shay.

Write an expression to show the number of books that Wilma has.

[1]

.....

.....

(ii) Ellie has 3 times as many books as Wilma.

Write an expression to show the number of books that Ellie has.

[1]

.....

.....

(b) Shay has written this statement in his maths homework.

$$5x + 3y = 8xy$$

Is Shay correct?

Yes

☐

No

☐

Explain how you decide.

[1]

.....

.....

Question taken from Eduqas examination paper 530002, June 2019

Solving an equation: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	2	
#3	2	
#4	1	
#5	5	
#6	2	
#7	5	
Total	20	

#1

Solve the following equations.

(a) $\frac{x}{3} = 8$

[1]

(b) $5x - 8 = 7$

[2]

Question taken from Eduqas examination paper 530001, November 2020

#2

(c) Solve each of the following equations.

(i) $6x = 48$

[1]

(ii) $\frac{a}{4} = 40$

[1]

Question taken from Eduqas examination paper 530001, May 2024

#3

(a) Solve $6x - 3 = 27$.

[2]

Question taken from Eduqas examination paper 530001, November 2024

#4

(a) Solve $6x = 42$.

[1]

Question taken from Eduqas examination paper 530001, November 2023

#5

(a) Solve $12x - 9 = 6 + 7x$.

[2]

(b) Solve $10(x + 2) - (2x - 9) = 30$.

[3]

Question taken from Eduqas examination paper 530001, June 2018

#6

(a) Solve $5x - 1 = 3x + 4$.

[2]

Question taken from Eduqas examination paper 530001, November 2019

#7

(a) Solve $19 - 4x = 11$.

[2]

.....

.....

.....

.....

(b) Solve $\frac{2x-3}{4} = 3x$.

[3]

.....

.....

.....

.....

.....

.....

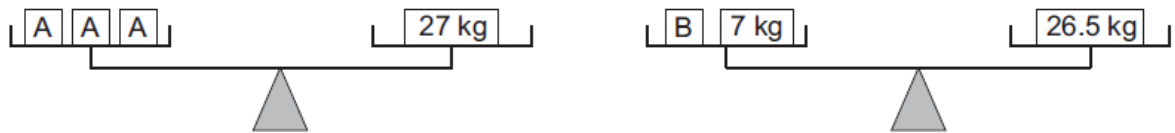
Question taken from Edugas examination paper 530001, June 2019

Solving an equation: Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	1	
#3	2	
#4	2	
#5	2	
#6	2	
#7	2	
#8	2	
#9	2	
#10	2	
#11	5	
#12	2	
Total	27	

#1

Each diagram shows a balance with the total mass on each side being equal.



Use the information above to complete the balance below with the missing mass.

[3]

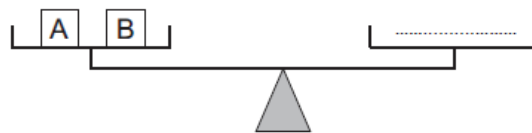
.....

.....

.....

.....

.....



Question taken from Eduqas examination paper 530002, June 2018

#2

(b) Solve $\frac{f}{3} = 5 \cdot 1$.

[1]

.....

.....

Question taken from Eduqas examination paper 530002, June 2023

#3

(f) Solve $5x - 2 = 11$.

[2]

Question taken from Eduqas examination paper 530002, June 2024

#4

(b) Solve $4x - 5 = 2$.

[2]

Question taken from Eduqas examination paper 530002, November 2022

#5

(d) Solve $\frac{e}{2} - 4 = 6$.

[2]

Question taken from Eduqas examination paper 530002, June 2022

#6

(b) Solve $7x + 6 = 4x + 7$.

[2]

Question taken from Eduqas examination paper 530002, November 2023

#7

(a) Solve $7x - 5 = 2x + 3$.

[2]

Question taken from Eduqas examination paper 530002, June 2023

#8

(b) Solve each of the following.

(i) $x + 6 = 15$

[1]

(ii) $\frac{y}{7} = 6$

[1]

Question taken from Eduqas examination paper 530002, November 2019

#9

(c) Solve $\frac{d}{5} + 2 = 12$.

[2]

Question taken from Eduqas examination paper 530002, June 2018

#10

(a) Solve $6x - 1 = 5 + x$.

[2]

Question taken from Eduqas examination paper 530002, November 2021

#11

(a) Solve $2x + 5 = 11 + 5x$.

[2]

.....

.....

.....

.....

(b) Solve $8x - (3x + 1) = 2$.

Give your answer as a fraction.

[3]

.....

.....

.....

.....

.....

.....

Question taken from Eduqas examination paper 530002, June 2022

#12

(a) Solve $5x + 4 = 2x + 6$.

[2]

.....

.....

.....

.....

.....

Question taken from Eduqas examination paper 530002, November 2022

Forming and solving an equation: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	5	
#2	11	
Total	16	

#1

- (b) Show that the triangle below is **not** isosceles.
You must use an algebraic method and not trial and improvement.

[5]

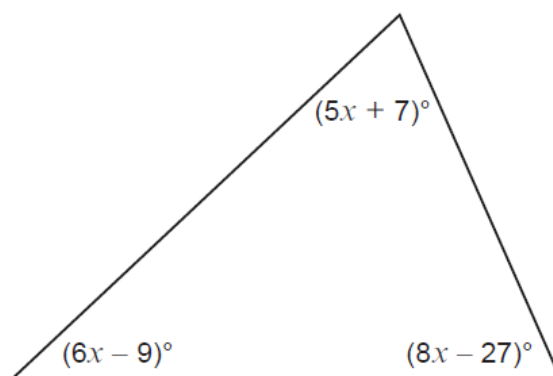


Diagram not drawn to scale

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Question taken from Eduqas examination paper 530001, November 2024

#2

(a) A garden centre sells packets of flower bulbs.

Bluebell Bulbs
£6 per packet

Daffodil Bulbs
£5 per packet

Tulip Bulbs
£10 per packet

One day, the garden centre sells:

- x packets of bluebell bulbs
- twice as many packets of daffodil bulbs as bluebell bulbs
- five times as many packets of tulip bulbs as bluebell bulbs.

In total, 320 packets of bulbs are sold.

How much money does the garden centre take from selling these bulbs?

[5]

This image shows a full page of white paper with horizontal dashed lines, typical of primary school writing paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

The garden centre takes £

- (b) Anna and Tom work part-time at the garden centre.
The number of hours they each work is in the ratio 3 : 5.
Tom works for 25 hours each week.

- (i) Work out the **total** number of hours Anna and Tom work each week. [2]

.....

.....

.....

.....

.....

.....

- (ii) Anna earns £156 each week.

- How much does Anna earn per hour? [2]

.....

.....

.....

.....

- (iii) Tom gets a pay **increase** of £1 per hour.
His hours remain the same and he now earns £175 per week.

- How much did Tom earn per hour **before** his pay increase? [2]

.....

.....

.....

.....

Question taken from Eduqas examination paper 530001, June 2018

Forming and solving an equation: Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	3	
#3	4	
Total	10	

#1

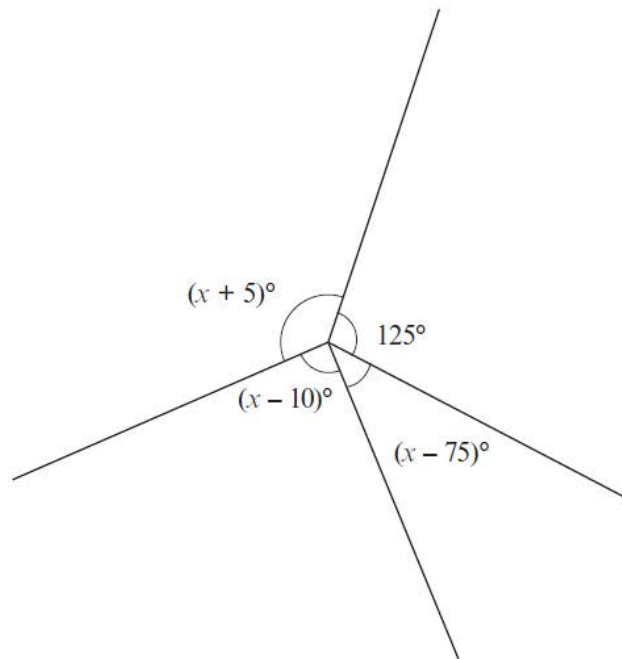


Diagram not drawn to scale

Write an equation in terms of x and solve it.
You must show all your working.

[3]

.....

.....

.....

.....

.....

.....

.....

.....

.....

$x =$

Question taken from Eduqas examination paper 530002, November 2019

#2

- (b) Abby, Ben and Ceri are solving a puzzle.

Abby takes x seconds.

Ben takes 5 seconds more than Abby.

Ceri takes twice as long as Ben.

Ceri takes 116 seconds to solve the puzzle.

Use an algebraic method to find how long Abby takes to solve the puzzle.

You must show all your working.

[3]

.....

.....

.....

.....

.....

.....

.....

.....

Abby takes seconds

Question taken from Eduqas examination paper 530002, November 2021

#3

(b) Roza is buying bananas and apples.

She buys x bananas which cost 30 pence each.

She buys 2 more apples than the number of bananas she buys.

Her apples cost 25 pence each.

She pays a total of £5.45.

Use an algebraic method to find the number of bananas Roza buys.

[4]

.....

.....

.....

.....

.....

.....

.....

.....

.....

Question taken from Eduqas examination paper 530002, June 2023

Solving Inequalities: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	3	
#3	3	
#4	3	
Total	12	

#1

(c) (i) Solve the inequality $10x - 7 \leq 8$.

[2]

.....

.....

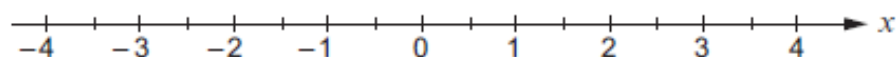
.....

.....

.....

(ii) Represent your answer to part (c)(i) on the number line below.

[1]

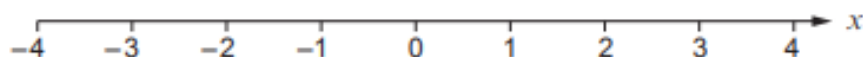


Question taken from Eduqas examination paper 530001, June 2018

#2

(c) Represent the inequality $-2 \leq x \leq 3$ on the number line below.

[1]

(d) Solve $\frac{2x}{3} < 4$.

[2]

.....

.....

.....

.....

Question taken from Eduqas examination paper 530001, November 2019

#3

(c) (i) Solve $3x + 2 > 5$.

[2]

.....

.....

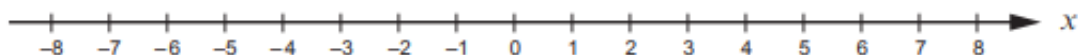
.....

.....

.....

(ii) Represent your answer to part (c)(i) on the number line below.

[1]



Question taken from Eduqas examination paper 530001, June 2019

#4

(b) (i) Solve $2n + 9 < 99$.

[2]

.....

.....

.....

.....

.....

.....

(ii) Write down the number of terms of this sequence that are less than 99.

[1]

.....

.....

Number of terms =

Question taken from Eduqas examination paper 530001, May 2023

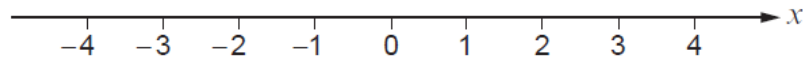
Solving Inequalities: Calculator

Question	Maximum Mark	Mark Awarded
#1	1	
#2	2	
#3	2	
#4	4	
#5	4	
Total	13	

#1

- (c) Represent the inequality
- $-2 < x \leq 3$
- on the number line below.

[1]



Question taken from Eduqas examination paper 530002, June 2024

#2

- (c) Tansy is trying to solve
- $1 < x + 2 \leq 5$
- where
- x
- is a whole number. Here is her work.

	$1 - 2 < x$ and $x \leq 5 - 2$
	$-1 < x$ and $x \leq 3$
	$-1 < x \leq 3$
	x is $-1, 0, 1, 2$ or 3 .

Ali says,

"You have made an error."

Is Ali correct?

Yes

☐

No

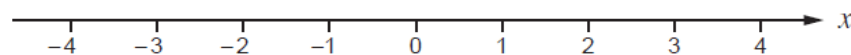
☐

Show clearly how you decide.

[1]

- (d) Represent the inequality
- $x > -2$
- on the number line below.

[1]



Question taken from Eduqas examination paper 530002, June 2022

#3

(b) Solve $4x - 3 > 17$.

[2]

.....

.....

.....

.....

.....

Question taken from Eduqas examination paper 530002, November 2022

#4

(a) n is a whole number where $-4 \leq 2n < 6$.
Write down all the possible values of n .

[2]

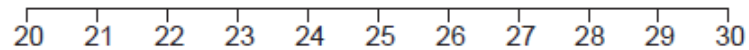
.....

.....

.....

(b) Represent the inequality $23 < x \leq 28$ on this number line.

[2]



Question taken from Eduqas examination paper 530002, November 2020

#5

- (b) (i) Solve $n + 11 < 4n - 5$.

[3]

.....

.....

.....

.....

- (ii) n is an integer.
What is the least possible value of n ?

[1]

.....

.....

Question taken from Eduqas examination paper 530002, November 2024

Identities: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
Total	2	

#1

Here is an identity in terms of the variable x .

$$m(x + 2) \equiv 3x + n$$

Write down the value of each of the constants m and n .

[2]

.....

.....

.....

.....

$m =$ $n =$

Question taken from Eduqas examination paper 530001, June 2018

Changing the subject: Non-Calculator

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

#1

Rearrange this formula to make n the subject.

[2]

$$t = 5 + 3n$$

Question taken from Eduqas examination paper 530001, May 2022

#2

Make x the subject of the following formula.

[2]

$$y = \frac{x+3}{4}$$

Question taken from Eduqas examination paper 530001, November 2019

#3

(b) Make w the subject of the formula $y = 5w - 4$.

[2]

Question taken from Eduqas examination paper 530001, May 2024

Changing the subject: Calculator

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

#1

Make g the subject of the formula.

[2]

$$h = k + 2g$$

Question taken from Eduqas examination paper 530002, June 2023

#2

Make R the subject of the formula $P = \sqrt[3]{RQ}$.

[2]

Question taken from Eduqas examination paper 530002, June 2024

#3

Rearrange each of the following to make w the subject of the formula.

(a) $\frac{7}{w} = e$

[1]

(b) $3(w + 5) - f = g$

[3]

Question taken from Eduqas examination paper 530002, November 2018

#4

(c) Make x the subject of the formula.

[1]

$$\frac{a}{x} = b$$

.....

.....

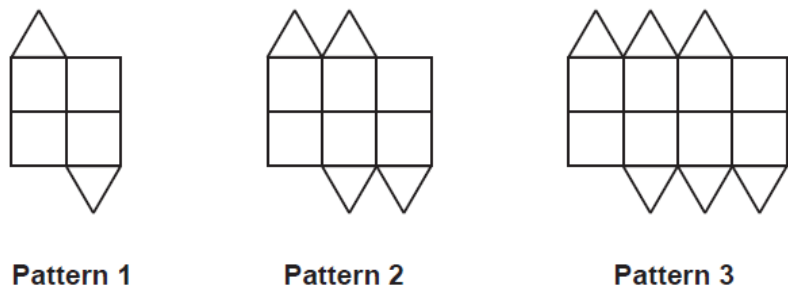
Question taken from Eduqas examination paper 530002, November 2024

Sequences: Calculator

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

#1

(a) The following sequence of patterns is made using squares and triangles.



(i) Draw Pattern 5 in the space below. [1]

(ii) Is it possible for one of the patterns in the sequence to have 23 squares and 21 triangles? Give a reason for your answer. [1]

Yes ☐

No ☐

Question taken from Eduqas examination paper 530002, June 2024

#2

- (a) (i) Write down the **next term** in the following sequence.

[1]

3, 12, 48, 192, ...

.....

.....

- (ii) Write down **the rule** for continuing the following sequence.

[1]

-3, -11, -19, -27, ...

.....

.....

- (b) Patterns are made using sticks.
The first three patterns in a sequence are shown below.



Pattern 1



Pattern 2



Pattern 3

Hugo says,

The number of sticks in pattern 7 is 35 because there are 5 sticks in pattern 1 and $5 \times 7 = 35$.

Is Hugo correct?

Yes

☐

No

☐

Give the reason for your answer.

[1]

.....

.....

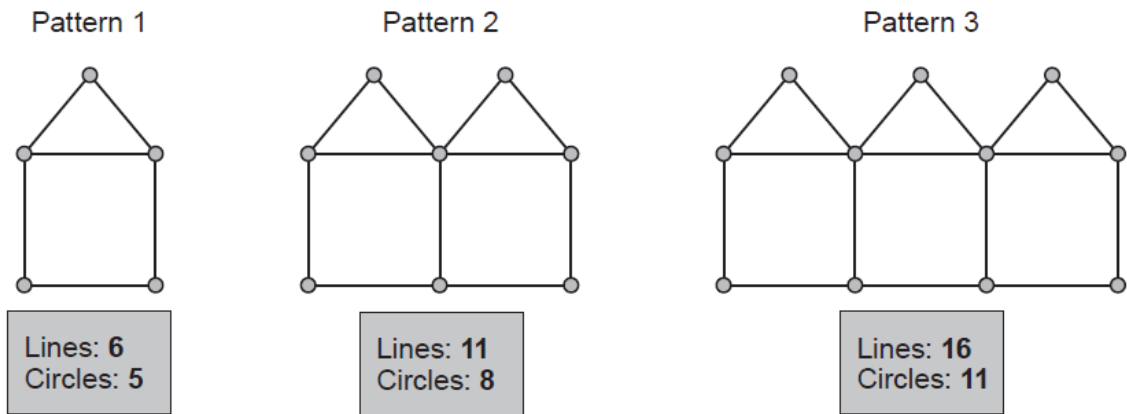
.....

.....

Question taken from Eduqas examination paper 530002, November 2024

#3

The following sequence of patterns is made using lines and circles.



(a) How many lines and circles will there be in pattern 5?

[2]

.....

.....

.....

.....

Lines Circles

(b) Is it possible for a pattern in this sequence to have 36 lines and 24 circles?

Yes

☐

No

☐

Show how you decide.

[1]

.....

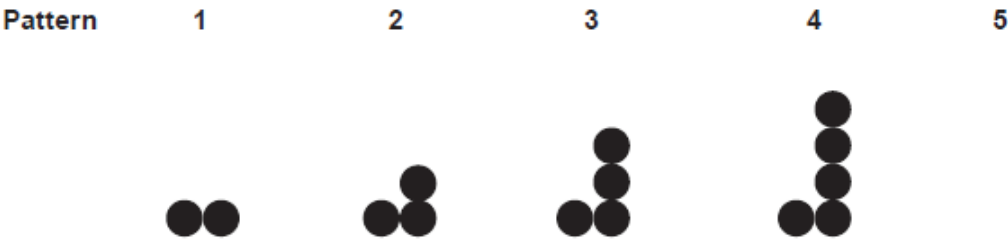
.....

.....

Question taken from Eduqas examination paper 530002, June 2022

#4

(a) Here are the first four patterns in a sequence.



(i) Draw pattern 5. [1]

(ii) How many circles will be in pattern 6? [1]

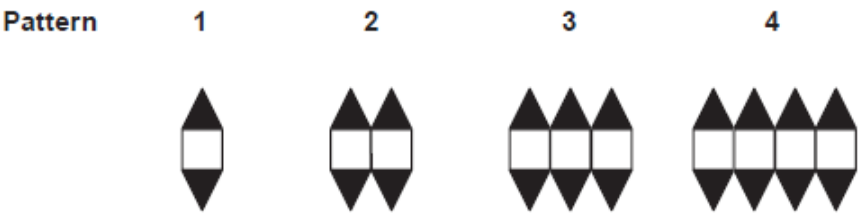
.....

(iii) Which pattern uses exactly 99 circles? [1]

.....

.....

(b) Here are the first four patterns in a different sequence.



Write down the rule connecting the number of triangles with the number of squares in each pattern. [1]

.....

.....

Number of triangles =

Question taken from Eduqas examination paper 530002, November 2020

#5

- (a) Write down the next two terms for this sequence

17, 31, 45, 59, ,

[1]

- (b) For the sequence below, what is the rule for finding the next term?

13, 26, 52, 104,

[1]

- (c) Hannah and Faith are working with the following sequence.

4, 7, 12, 19, 28,

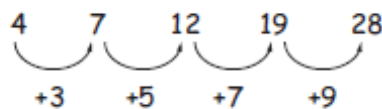
- (i) Hannah says,

'The 4th term is $4^2 + 3$ which is 19. The 5th term is $5^2 + 3$, which is 28.'

Use Hannah's method to find the 15th term.

[1]

- (ii) Faith looks at the differences between the terms. She writes,



The difference increases by 2 each time.

Continue Faith's method to find the 7th term.
You must show all your working.

[1]

- (iii) Hannah and Faith are working out the 100th term.
-
- Who has the quicker method?

Hannah ☐ Faith ☐

Give a reason for your answer.

[1]

Question taken from Eduqas examination paper 530002, November 2018

Nth term (linear sequence): Non-Calculator

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

#1

(b) Find the n th term of the following sequence.

[2]

4, 9, 14, 19, 24,

.....

.....

.....

.....

Question taken from Eduqas examination paper 530001, November 2022

#2

(a) Find an expression for the n th term of this sequence.

[2]

3 11 19 27 35

.....

.....

.....

.....

.....

Question taken from Eduqas examination paper 530001, June 2018

#3

(a) Find an expression for the n th term of this sequence.

[2]

1 10 19 28 37

.....

.....

.....

.....

.....

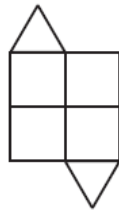
Question taken from Eduqas examination paper 530001, November 2021

Nth term (linear sequence): Calculator

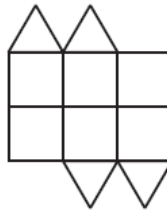
Question	Maximum Mark	Mark Awarded
#1	2	
Total	2	

#1

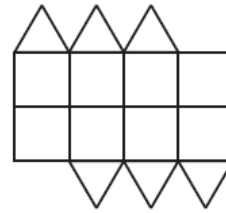
- (a) The following sequence of patterns is made using squares and triangles.



Pattern 1



Pattern 2



Pattern 3

- (iii) Write down the n th term for the number of **squares** in the pattern.

[2]

.....

.....

.....

Question taken from Eduqas examination paper 530002, June 2024

Sequences (other): Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	1	
Total	1	

#1

(a) Find the next term of the following Fibonacci-type sequence.

[1]

2, 3, 5, 8, 13, 21, 34,

.....

.....

.....

.....

Question taken from Eduqas examination paper 530001, November 2022

Factorising (Quadratic): Non-Calculator

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

#1

(a) Factorise $x^2 + 2x - 15$.

[2]

(b) Write down the solutions of the equation $x^2 + 2x - 15 = 0$.

[1]

Question taken from Eduqas examination paper 5300001, November 2018

#2

(b) (i) Factorise $x^2 - 10x + 21$.

[2]

Question taken from Eduqas examination paper 5300001, May 2022

Factorising (Quadratic): Calculator

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

#1

(a) Factorise $x^2 - 5x - 24$.

[2]

Question taken from Eduqas examination paper 530002, June 2024

#2

(c) Factorise $x^2 + 5x + 4$.

[2]

Question taken from Eduqas examination paper 530002, June 2023

#3

(a) Factorise $a^2 + 5a - 14$.

[2]

Question taken from Eduqas examination paper 530002, June 2018

#4

(b) Factorise $x^2 - 13x + 36$.

[2]

Question taken from Eduqas examination paper 530002, June 2019

Solving a quadratic equation: Non-Calculator

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

#1

- (d) Gracie is trying to solve the equation $x^2 - 5x + 6 = 0$.

Here is her work.

$x^2 - 5x + 6 = 0$
$(x - 3)(x - 2) = 0$
$x - 3 \quad x - 2$
$x = -3, \quad x = -2$

Is Gracie's work correct?

Yes

☐

No

☐

Show clearly how you decide.

[1]

.....

.....

.....

Question taken from Eduqas examination paper 530001, June 2018

#2

- (b) (i) Factorise $x^2 - 10x + 21$.

[2]

.....

.....

.....

- (ii) Use your answer to part (b)(i) to write down the solutions of the equation $x^2 - 10x + 21 = 0$.

[1]

.....

.....

$x =$ or $x =$

Question taken from Eduqas examination paper 530001, May 2022

Solving a quadratic equation: Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
Total	3	

#1

(c) Solve $w^2 + 7w - 18 = 0$.

[3]

Question taken from Eduqas examination paper 530002, June 2019

Difference between two squares: Calculator

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

#1

(c) Factorise $y^2 - 400$.

[1]

.....

Question taken from Eduqas examination paper 530002, November 2023

#2

(b) Factorise $b^2 - 25$.

[1]

.....

.....

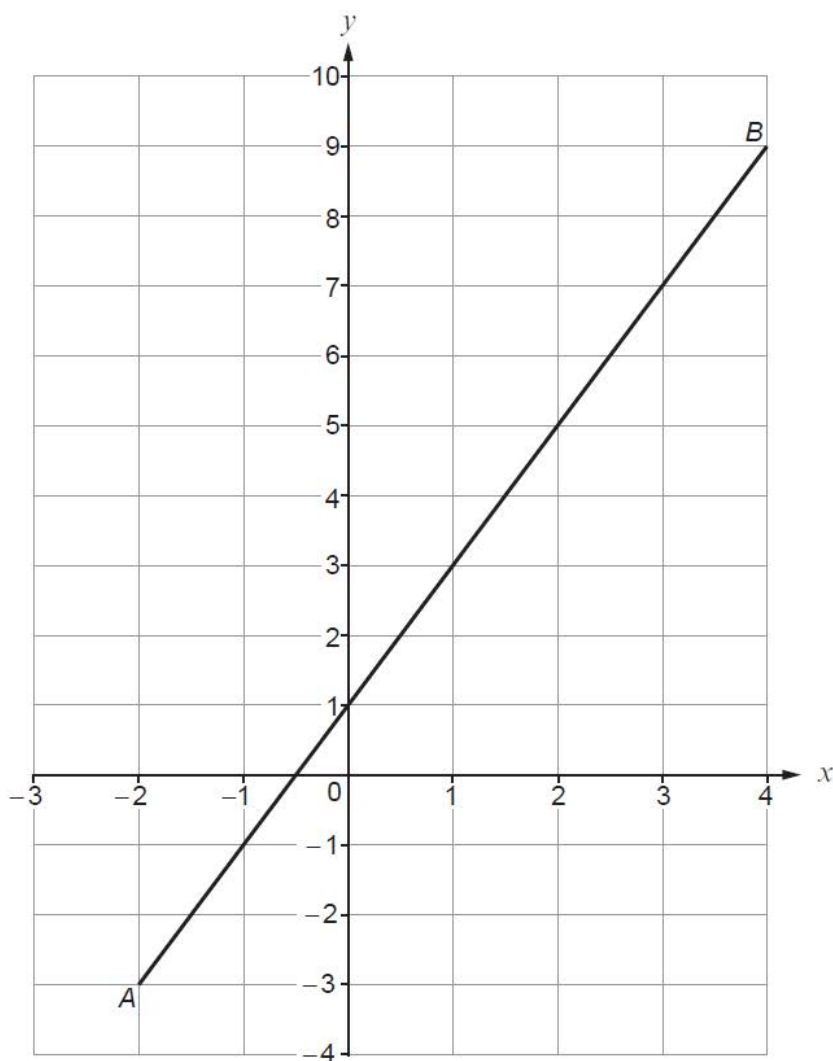
.....

Question taken from Eduqas examination paper 530002, June 2018

Straight-line Graphs: Non-Calculator

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

#1



The diagram shows the graph of a straight line, AB .

Find the equation of this line.

Give your answer in the form $y = mx + c$.

[3]

.....

.....

.....

.....

.....

.....

.....

$y =$

Question taken from Eduqas examination paper 5300001, November 2019

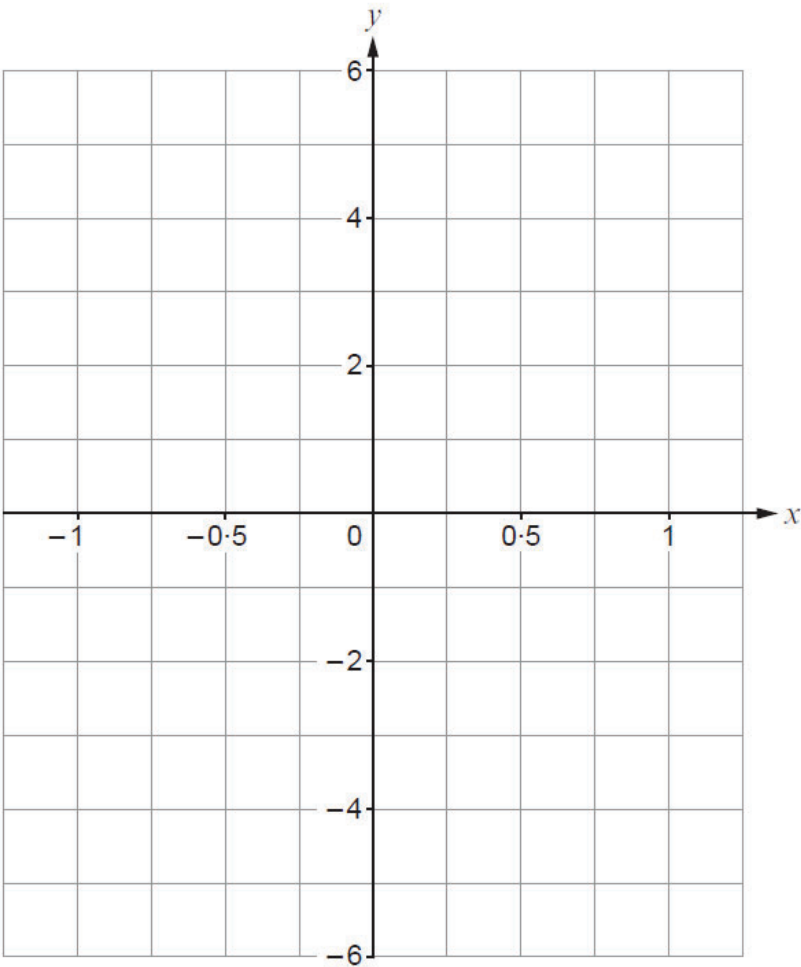
#2

The table shows some of the values of $y = 4x - 1$ for $-1 \leq x \leq 1$.

x	-1	-0.5	0	0.5	1
$y = 4x - 1$	-5			1	3

(a) Complete the table above. [2]

(b) On the grid below, draw the graph of $y = 4x - 1$ for $-1 \leq x \leq 1$. [2]



Question taken from Eduqas examination paper 5300001, November 2022

#3 The table shows some of the values of $y = 1 - 2x$ for $-2 \leq x \leq 2$.

x	-2	-1	0	1	2
$y = 1 - 2x$	5		1		

(a) Complete the table. [2]

.....

.....

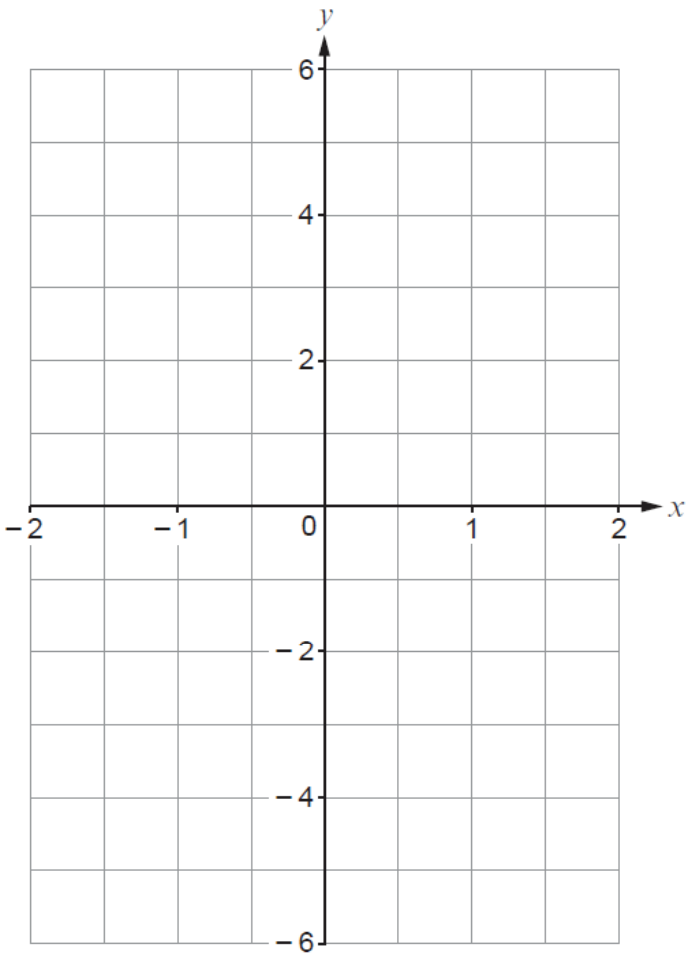
.....

.....

(b) On the grid, draw the line $y = 1 - 2x$ for $-2 \leq x \leq 2$. [2]

.....

.....



Question taken from Eduqas examination paper 5300001, November 2023

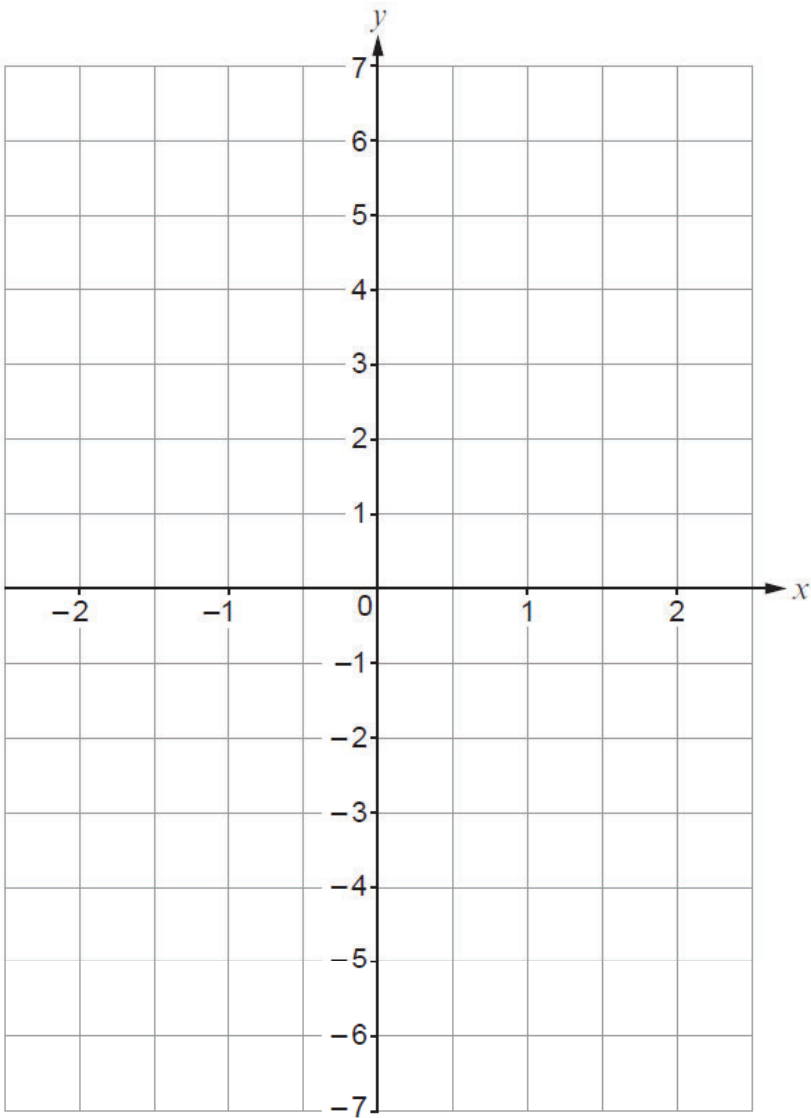
#4

The table shows some of the values of $y = 3x$ for $-2 \leq x \leq 2$.

x	-2	-1	0	1	2
$y = 3x$				3	6

(a) Complete the table. [2]

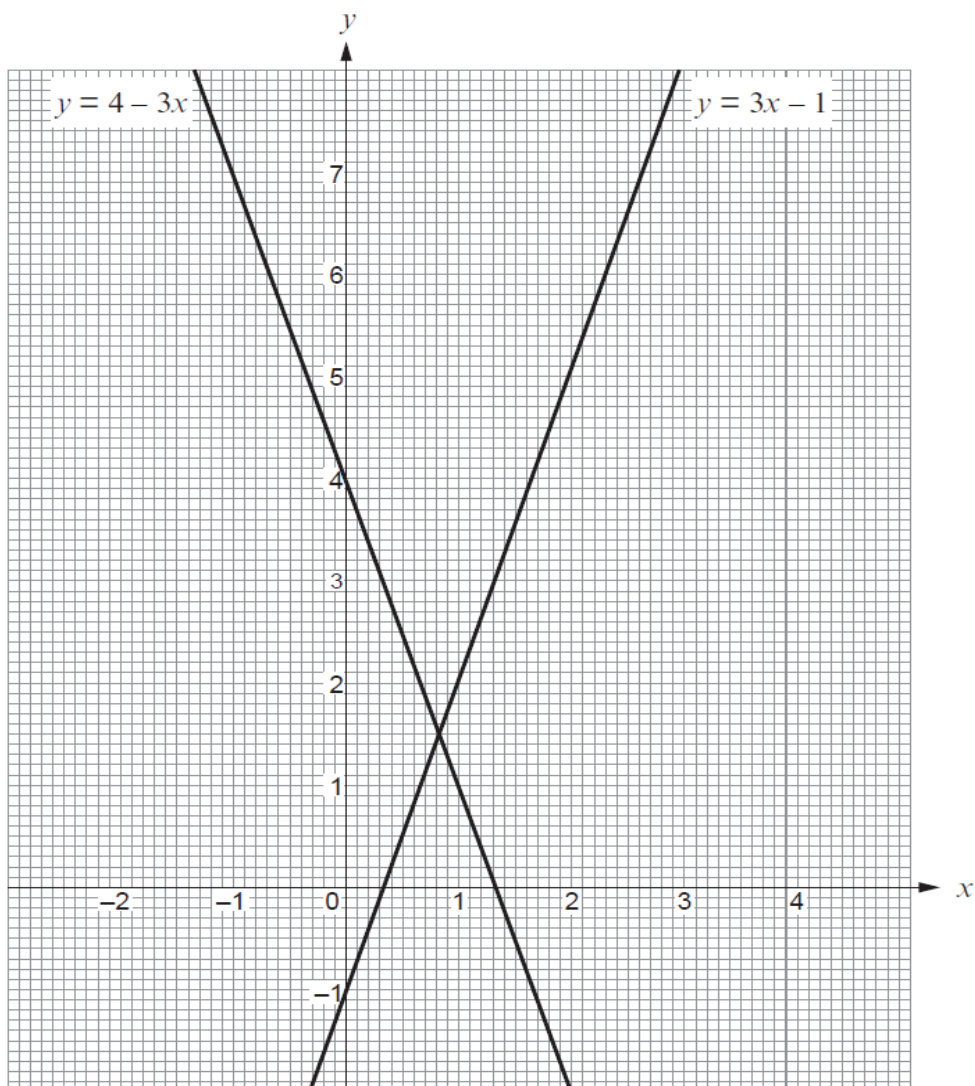
(b) On the grid, draw the graph of $y = 3x$ for $-2 \leq x \leq 2$. [2]



Question taken from Eduqas examination paper 530001, May 2023

#5

- (a) The diagram shows the graphs of $y = 3x - 1$ and $y = 4 - 3x$.



- (ii) Circle the equation that represents a line parallel to $y = 3x - 1$. [1]

$y = 3 - x$

$3y = x - 1$

$y = 3x + 2$

$\frac{3}{y} = x$

$\frac{x}{3} = y$

.....

.....

- (b) Circle the equation where y is directly proportional to x . [1]

$y = \frac{5}{x}$

$x + y = 1$

$7 = xy$

$y = 3x^2$

$y = 4x$

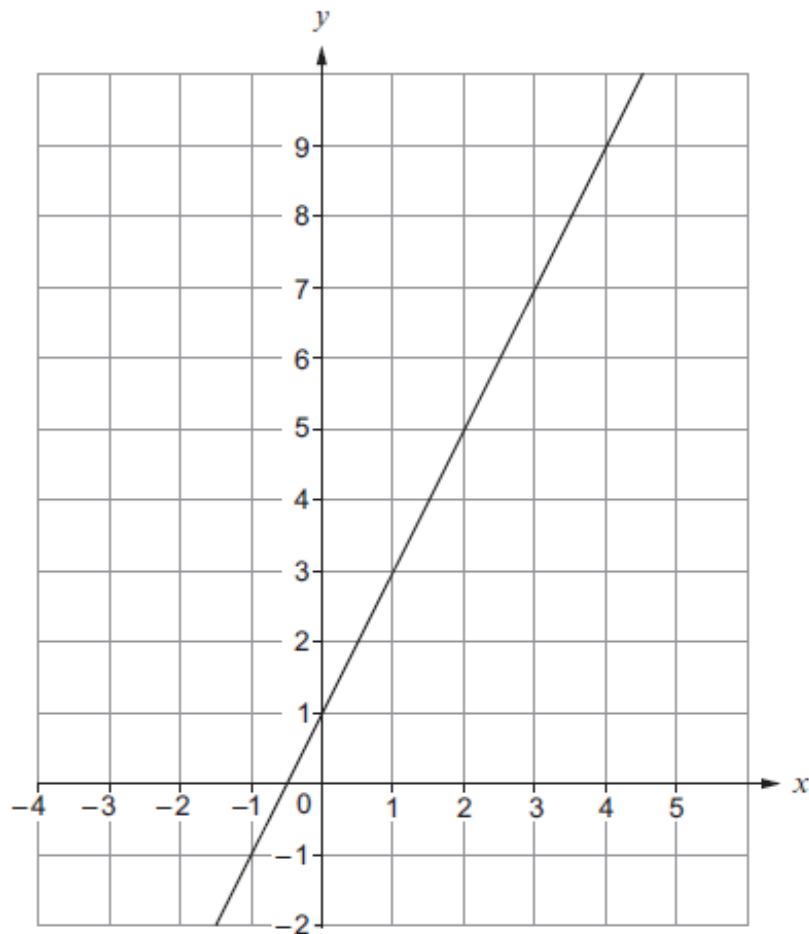
Question taken from Eduqas examination paper 530001, November 2021

Straight-line Graphs: Calculator

Question	Maximum Mark	Mark Awarded
#1	5	
#2	6	
Total	11	

#1

The diagram below shows the graph of the line $y = 2x + 1$.



- (a) Write down the coordinates of the point where the line crosses the y -axis. [1]

(..... ,)

- (b) (i) Plot the following coordinates on the grid above. [1]

$(-1, 5)$ $(0, 5)$ $(4, 5)$

- (ii) Write down the equation of the line that passes through these points. [1]

.....

- (c) Which of the following points lie on the line $y = 2x + 1$?

Circle your answers.

[2]

$(5, 11)$ $(20, 21)$ $(20, 41)$ $(31, 63)$ $(10, 31)$

Question taken from Eduqas examination paper 530002, November 2018

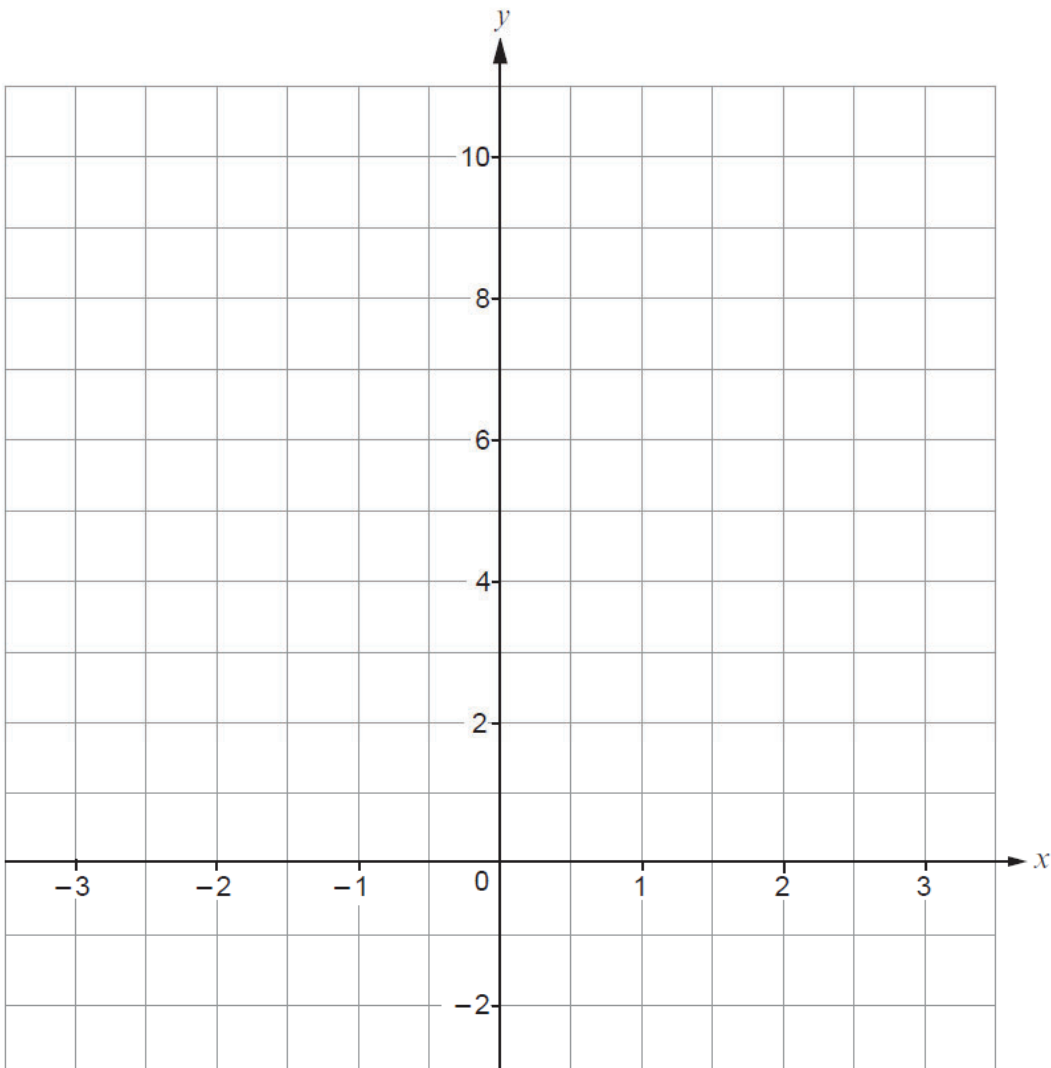
#2

The table shows some of the values of $y = x + 5$ for $-3 \leq x \leq 3$.

x	-3	-1	1	3
$y = x + 5$		4		8

(a) Complete the table above. [1]

(b) On the grid below, draw the graph of $y = x + 5$ for $-3 \leq x \leq 3$. [2]



- (c) Write down the coordinates of the y -intercept of the line $y = x + 5$. [1]

(..... ,)

- (d) Draw the graph of $x = 2$ on the grid on page 12. [1]

- (e) Write down the coordinates of the point where the graphs $y = x + 5$ and $x = 2$ cross. [1]

(..... ,)

Question taken from Eduqas examination paper 530002, November 2021

Parallel and Perpendicular Gradients: Non-Calculator

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

#1

A line L has equation $y = 12 - 4x$.

Write down the equation of a different line that is parallel to L .

[1]

.....

.....

.....

Question taken from Eduqas examination paper 5300001, November 2020

#2

Show that the lines

$$3y - 12x = 9 \text{ and } 2y = 8x - 13$$

are parallel to each other.

[3]

.....

.....

.....

.....

.....

.....

Question taken from Eduqas examination paper 5300001, November 2023

Quadratic Graphs: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	7	
#2	4	
Total	11	

#1

The table shows some of the values of $y = x^2 + x - 1$ for $-2 \leq x \leq 1$.

x	-2	-1	-0.5	0	1
$y = x^2 + x - 1$		-1	-1.25		

(a) Complete the table above.

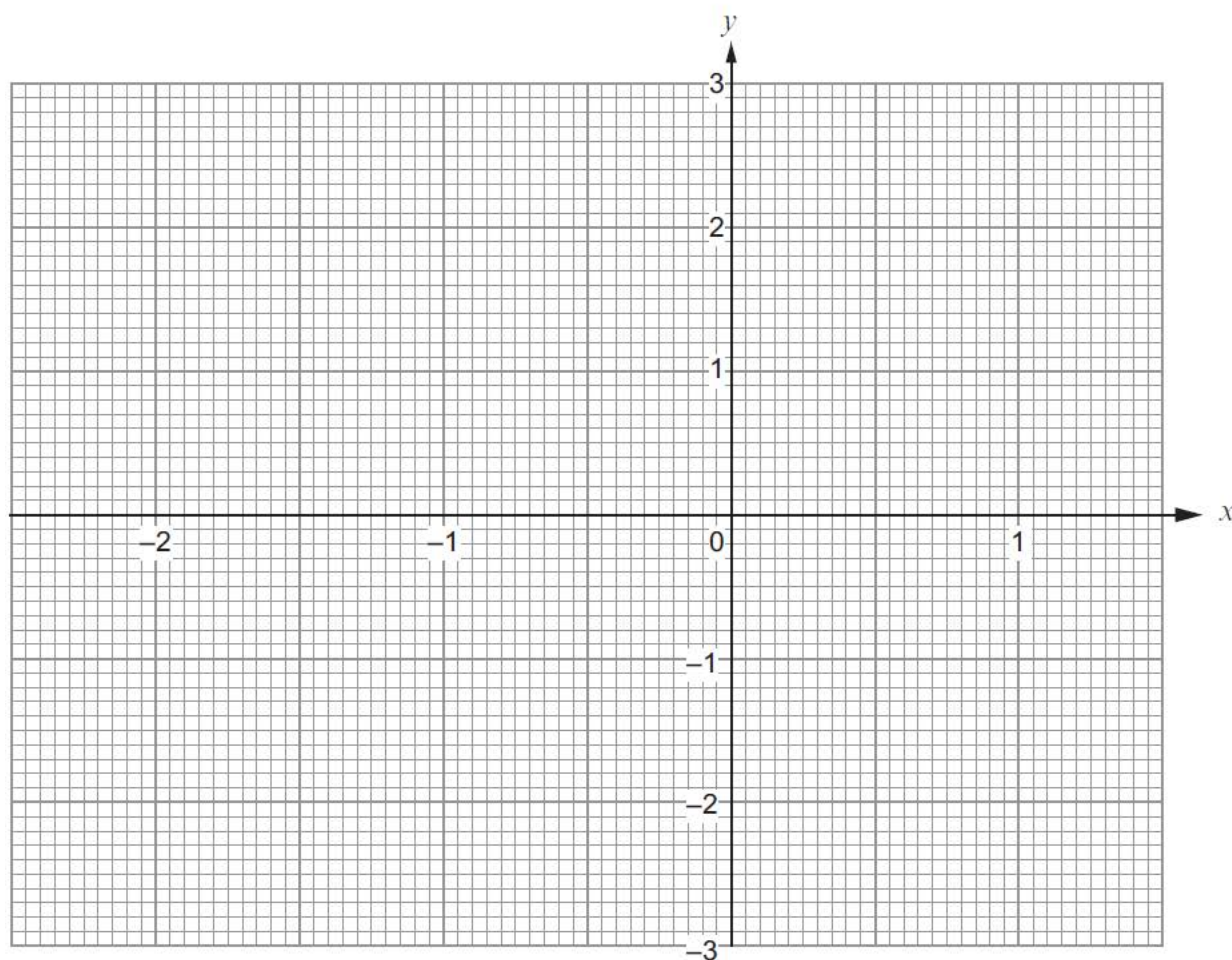
[2]

.....

.....

(b) On the graph paper below, draw the graph of $y = x^2 + x - 1$ for $-2 \leq x \leq 1$.

[2]



(c) State the equation of the line of symmetry of the curve $y = x^2 + x - 1$.

[1]

.....

.....

(d) Use your graph to solve $x^2 + x - 1 = 0$.

[2]

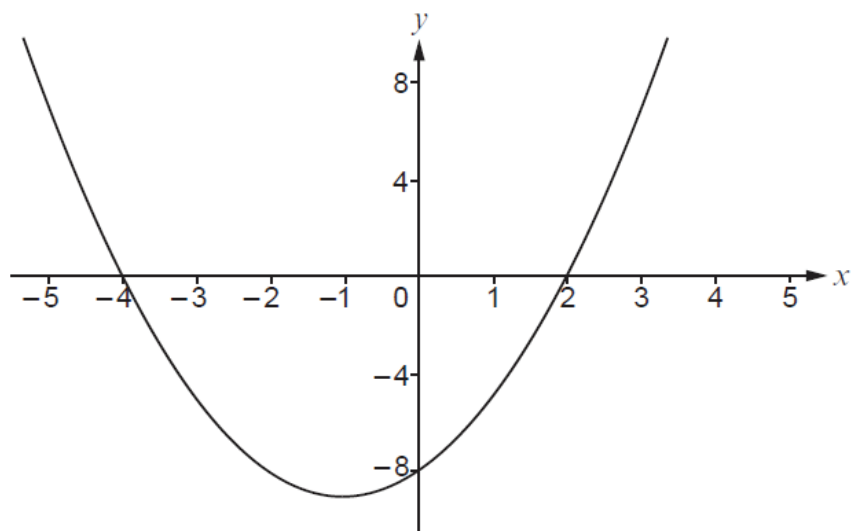
.....

.....

Question taken from Eduqas examination paper 530001, June 2019

#2

(b) The diagram shows the curve $y = x^2 + 2x - 8$.



(i) Write down the y -intercept of the curve. [1]

.....

(ii) Find the coordinates of the turning point of the curve. [2]

.....

.....

.....

(..... ,)

(iii) Use the diagram to solve $x^2 + 2x - 8 = 0$. [1]

.....

.....

.....

$x = \dots\dots\dots$ or $x = \dots\dots\dots$

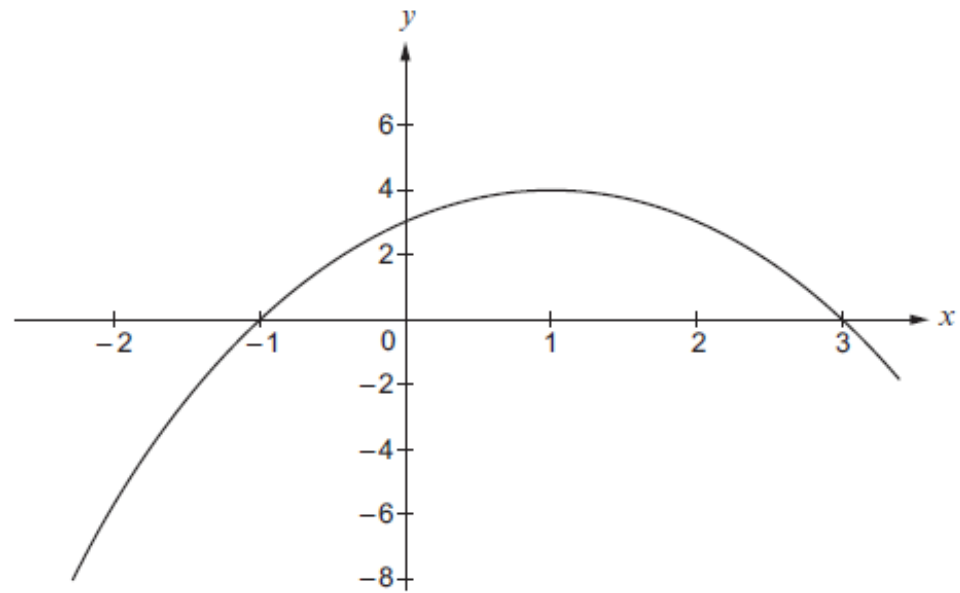
Question taken from Eduqas examination paper 5300001, May 2023

Quadratic Graphs: Calculator

Question	Maximum Mark	Mark Awarded
#1	5	
Total	5	

#1

A sketch of a graph representing the equation $y = 3 + 2x - x^2$ is shown below.



- (a) Find the y -coordinate when $x = 0$. [1]

.....

.....

- (b) Find the y -coordinate when $x = -3$. [1]

.....

.....

- (c) Give the coordinates of the point where the sketch shows a gradient of zero. [1]

.....

(..... ,)

- (d) Find the coordinates of all points for which $3 + 2x - x^2 = 0$. [2]

.....

.....

.....

Question taken from Eduqas examination paper 530002, November 2018

Reciprocal Graphs: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	6	
Total	6	

#1

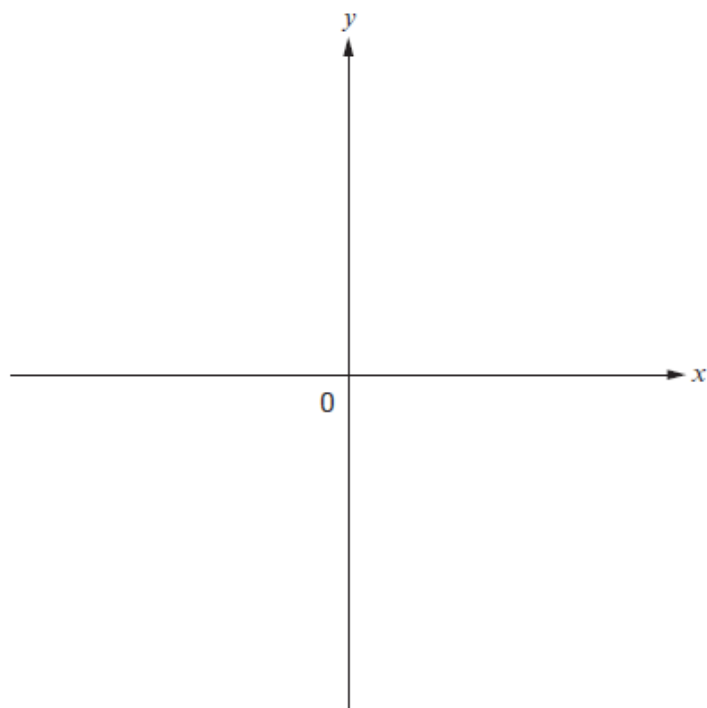
(a) (i) $xy = 1$

Explain why neither x nor y can be zero.

[1]

(ii) On the axes below, sketch the graph of $y = \frac{1}{x}$.

[2]



(iii) Complete this sentence about the graph you have drawn.

[1]

The graph shows ' y ' is proportional to x '.

(b) The variables V and p are connected by the equation $\frac{V}{p^2} = 5$.

Find the value of V when $p = 0.1$.

[2]

.....

.....

.....

Question taken from Eduqas examination paper 530001, November 2020

Identifying Types of Graphs: Non-Calculator

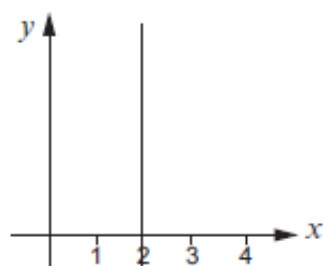
Question	Maximum Mark	Mark Awarded
#1	2	
Total	2	

#1

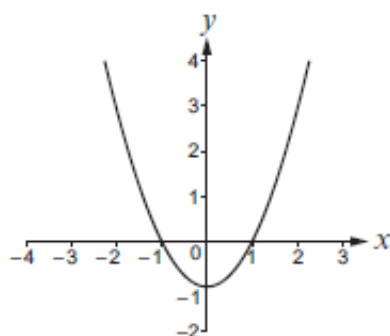
Match each graph to the correct equation.

[2]

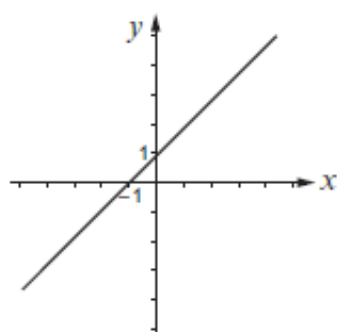
The first one has been completed for you.



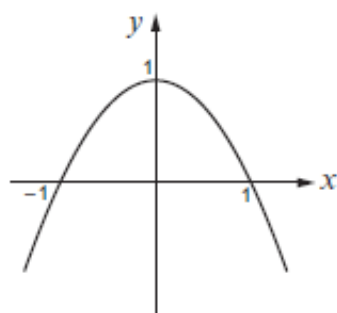
$$x = 2$$



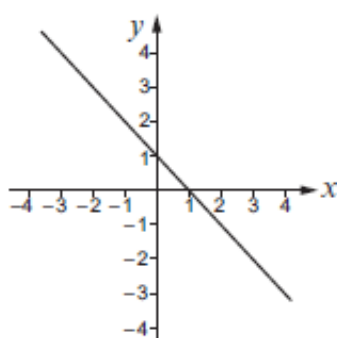
$$y = x + 1$$



$$y = 1 - x^2$$



$$y = 1 - x$$



$$y = x^2 - 1$$

Question taken from Eduqas examination paper 530002, June 2018

Distance-Time Graphs: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	7	
Total	7	

#1

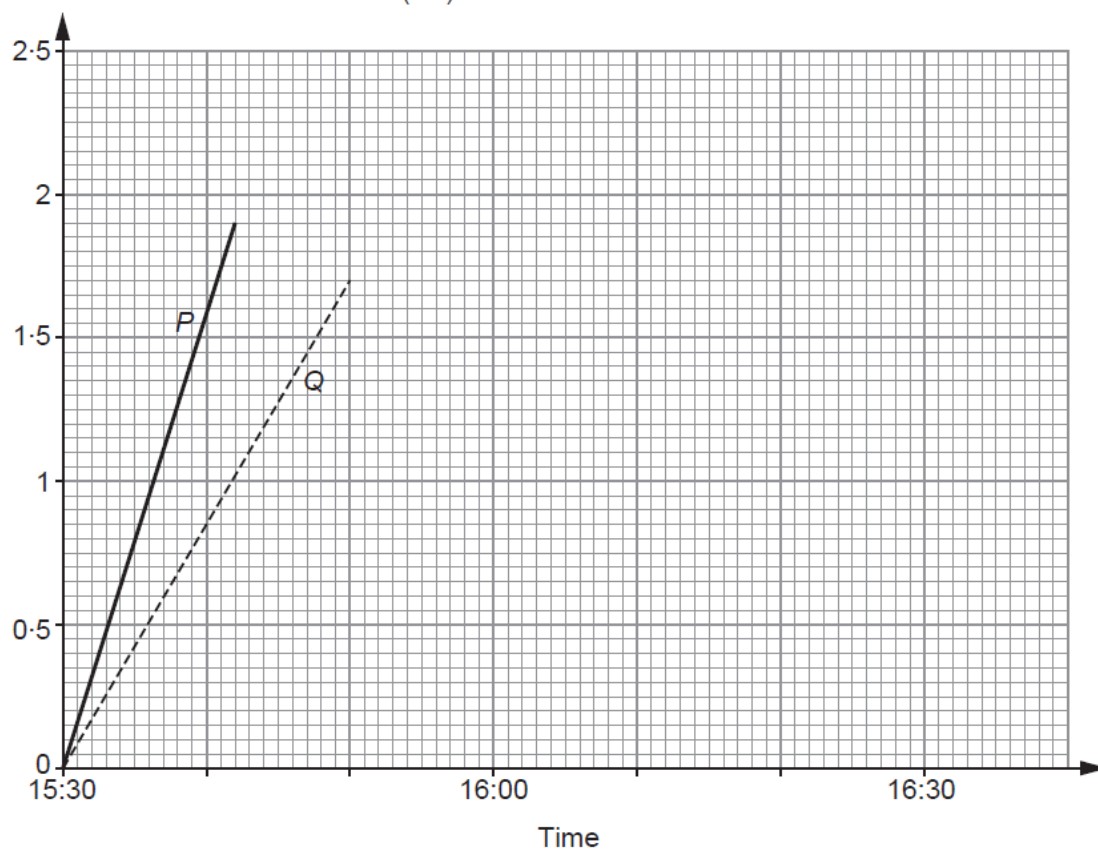
Three workmates, Alf, Nicky and Harriet, took part in a first aid training course at the local medical centre.

The course ended at 15:30.

After the course, they all travelled home to the same village.

The distance-time graph shows Alf's journey and Nicky's journey.

Distance travelled from medical centre (km)



- (a) Alf rode his bicycle and Nicky walked home.

Which of the two lines on the graph, *P* or *Q*, is more likely to represent Nicky's journey home?

P ☐ *Q* ☐

Explain how you decide.

[1]

.....

.....

.....

- (b) Harriet waited 10 minutes at a bus stop outside the medical centre and then caught the bus home.

After 5 minutes, the bus stopped in a traffic jam 0.5 km from the medical centre for 12 minutes.

The bus then travelled directly to Harriet's village.

Harriet got off the bus at a stop in her village 1.5 km from the medical centre.

Harriet was on the bus for a total of 20 minutes.

- (i) Draw Harriet's bus journey on the distance-time graph. [3]

.....

.....

- (ii) Harriet got off the bus and then walked 0.5 km to her house.
She walked at a speed of 2 km per hour.

How many minutes did it take Harriet to walk home from the bus stop? [2]

.....

.....

.....

.....

..... minutes

- (iii) Harriet lives further from the medical centre than Alf and Nicky.

Complete Harriet's journey home on the distance-time graph. [1]

.....

.....

Question taken from Eduqas examination paper 530001, November 2021

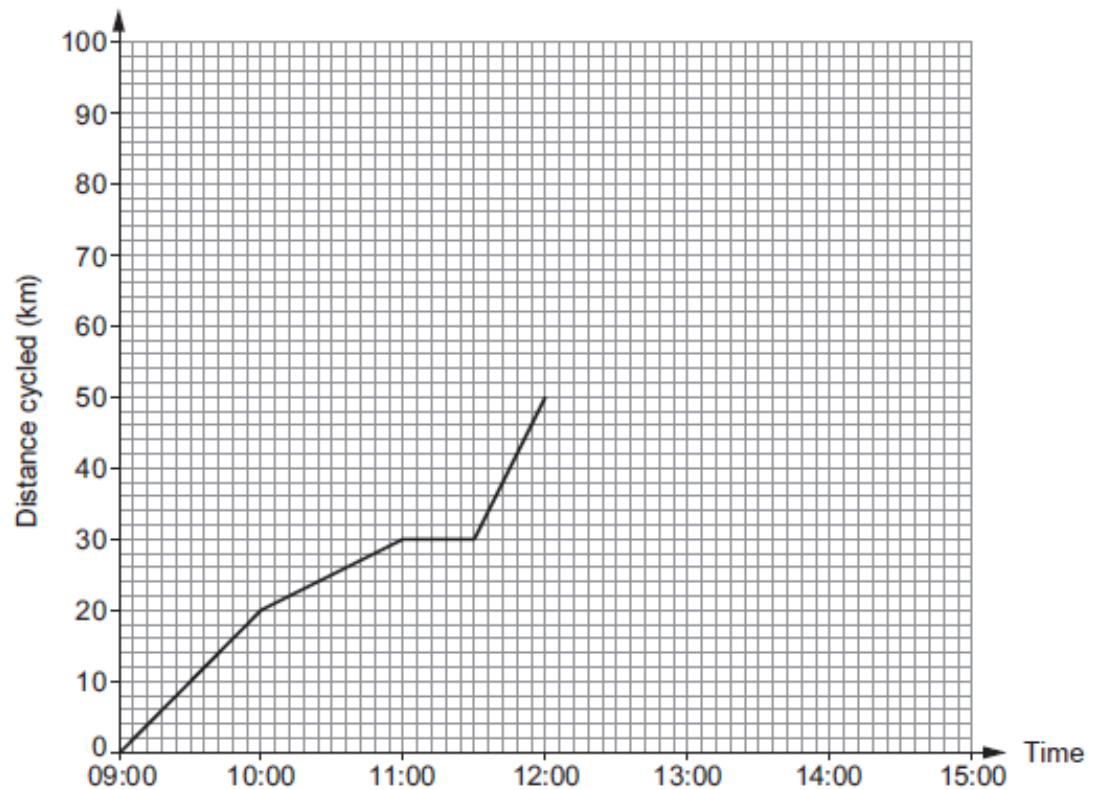
Distance-Time Graphs: Calculator

Question	Maximum Mark	Mark Awarded
#1	7	
Total	7	

#1

Jimmy went for a bike ride.

His journey is represented on the distance time graph below.



- (a) What was Jimmy's average speed between 09:00 and 11:00? [2]

.....

.....

- (b) Give an explanation for the shape of the graph between 11:00 and 11:30. [1]

.....

.....

- (c) (i) Between which times was Jimmy cycling at the greatest speed? [1]

..... and

- (ii) How can you tell this from the graph? [1]

.....

.....

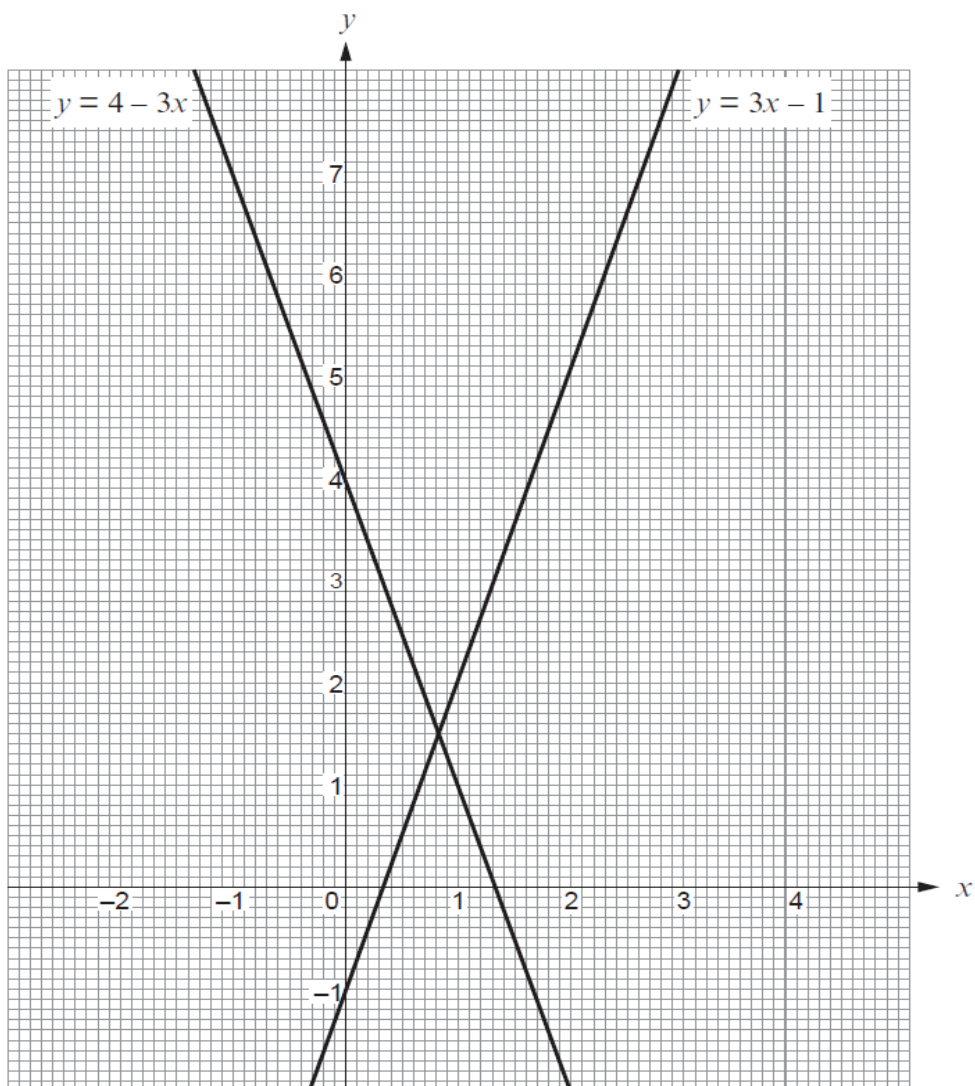
- (d) Between 12:00 and 13:00, Jimmy cycled at a speed of 10 km/h.
At 13:00, he increased his speed so that he had cycled a total of 90 km between 09:00 and 14:00.
Show his journey from 12:00 to 14:00 on the graph. [2]

Question taken from Eduqas examination paper 530002, June 2018

Simultaneous Equations (Graphically): Non-Calculator

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

- #1 (a) The diagram shows the graphs of $y = 3x - 1$ and $y = 4 - 3x$.



- (i) Use the graphs to write down an **approximate** solution of the equation $3x - 1 = 4 - 3x$.

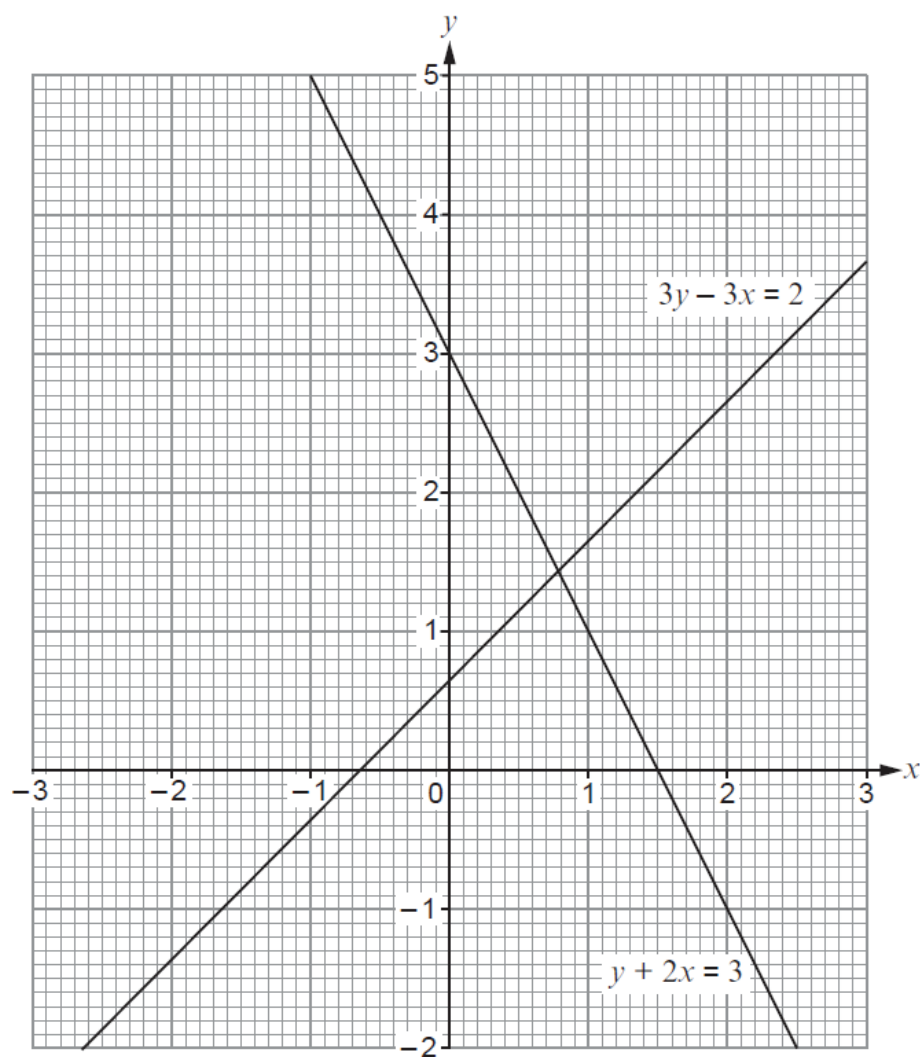
[1]

.....
 $x =$

Question taken from Eduqas examination paper 530001, November 2021

#2

(a)



Use the diagram to solve the following simultaneous equations.

$$3y - 3x = 2$$

$$y + 2x = 3$$

Give your answers correct to 1 decimal place.

[2]

.....

.....

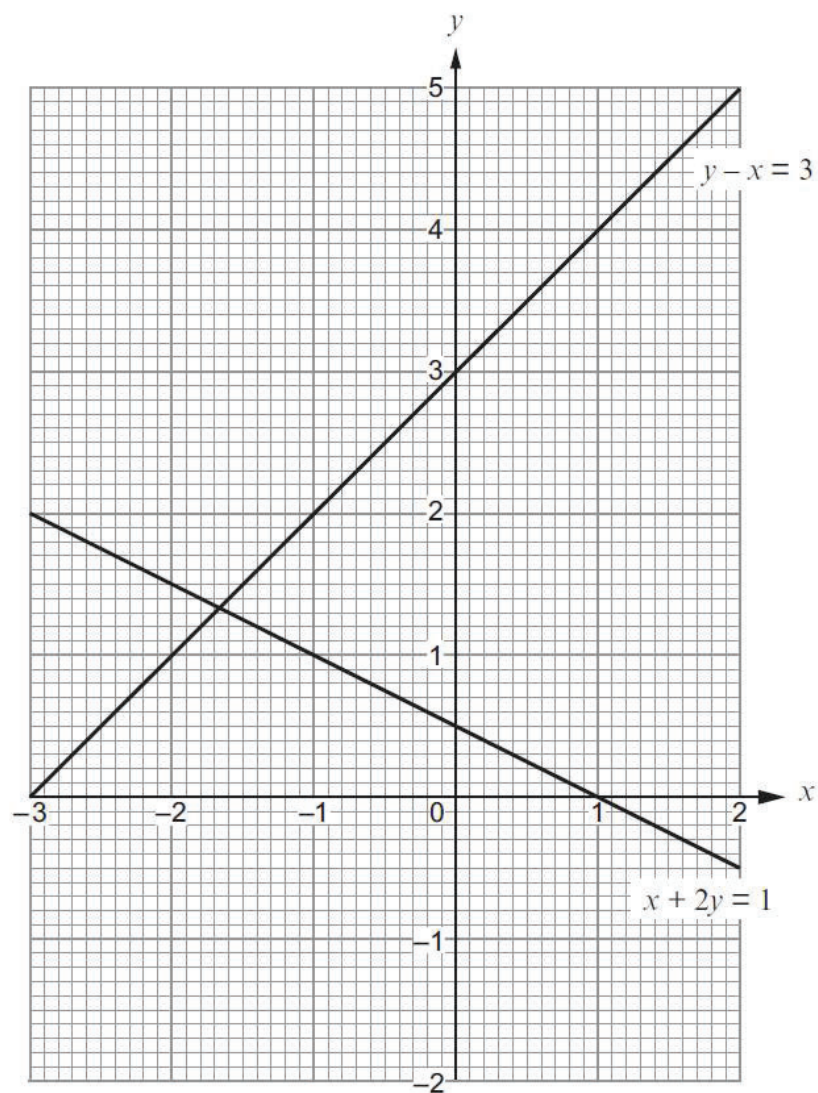
.....

$x =$ $y =$

Question taken from Eduqas examination paper 530001, May 2023

#3

(a)



Use the diagram to solve the simultaneous equations

$$y - x = 3,$$

$$x + 2y = 1.$$

Give your answers correct to 1 decimal place.

[2]

.....

.....

.....

Question taken from Eduqas examination paper 530001, November 2018

Simultaneous Equations (algebraic): Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
Total	2	

#1

(b) Solve the following simultaneous equations.

[2]

$$\begin{aligned}2x + y &= 8 \\ x - y &= 1\end{aligned}$$

.....

.....

.....

.....

.....

.....

Question taken from Eduqas examination paper 530001, November 2019

Simultaneous Equations (algebraic): Calculator

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

#1

(d) Solve the following simultaneous equations.

[3]

$$7x - 3y = 26$$

$$x + y = 3$$

You must show all your working.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

$$x = \text{.....} \quad y = \text{.....}$$

Question taken from Eduqas examination paper 530002, November 2023

#2

(c) Solve the following simultaneous equations. Use an algebraic (not graphical) method.

$$5x - 2y = 16$$

$$x - y = 5$$

You must show all your working.

[3]

.....

.....

.....

.....

.....

.....

.....

.....

.....

Question taken from Eduqas examination paper 530002, November 2022

Simultaneous Equations (forming and solving): Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	5	
Total	5	

(b) A theme park sells entrance tickets.

3 adult tickets and 1 child ticket would cost a total of £66.

A family ticket costs £45 and allows entry for 2 adults and 2 children.

How much cheaper is it to buy a family ticket than it would be to buy 2 adult and 2 child tickets? [5]

It is £ cheaper to buy a family ticket.

155

Simultaneous Equations (forming and solving): Calculator

Question	Maximum Mark	Mark Awarded
#1	5	
#2	6	
Total	11	

Question taken from Eduqas examination paper 530002, June 2019

#2

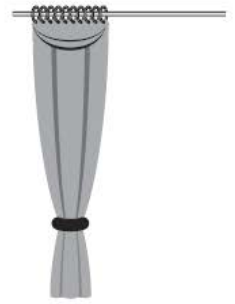
Alpha Bathrooms sells only one size of shower curtain and one size of rail.

Sunita is buying shower curtains and rails for her guest house. She needs more shower curtains than rails.

6 shower curtains and 3 rails would cost her £24.60.
5 shower curtains and 2 rails would cost her £18.60.

Calculate how much change Sunita would get from £40 when buying 7 shower curtains and 5 rails.
You must use an algebraic method.

[6]



.....

.....

.....

.....

.....

.....

.....

.....

Sunita's change from £40 would be

Question taken from Eduqas examination paper 530002, June 2018

Coordinates: Non-Calculator

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

Marking Scheme

#1

(a)(i) (3, 4)	B1	
(a)(ii) C marked at (-1, 1)	B1	Allow unambiguous mark at (-1, 1)
(b) D marked at (-5, 4) and 8 cm	B2	B1 for D correctly marked or B1 STRICT FT for 'their length AD'; $\pm 2\text{mm}$ Allow unambiguous mark at (-5, 4)

#2

(a) Point marked at (-4, 3)	B1	
(b) (-4, 3)	B1	FT their plotted point
(c) 32 cm	B2	B1 for either
	(4)	

#3

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) Point correctly plotted at (5, -2)	B1	Award unlabelled if unambiguous. B0 if labelled incorrectly.
(b) Point correctly plotted. (1, -2) (5, 4) (0, -1) (6, 3) (0, 3) or (6, -1)	B1	Strict FT for 'their B' provided not in first quadrant. Award unlabelled if unambiguous. Allow incorrect labelling provided the points form a right-angled triangle.
(c) (3, 1)	B2	Strict FT for 'their B' <u>provided not in first quadrant</u> . B1 for either of the following: - one correct coordinate, - a clear indication of the correct position of the midpoint of AB. If no marks, award SC1 for either: - reversed coordinates - (1, 3) or on FT - the correct coordinates of their midpoint for 'their B' in the first quadrant, provided 'their B' is not (1, p) or (q, 4).
	(4)	

#4

Component 1: Foundation Tier	Mark	Comment
(a) (-2, 5)	B1	
(b) <i>D</i> marked at (-2, -1) and <i>CD</i> = 5 (cm)	B2	Tolerance ± 2 mm B1 for <i>D</i> marked at (-2, -1) OR B1 STRICT FT for 'their length <i>CD</i> ', Allow unambiguous mark at (-2, -1)
	(3)	

#5

Component 1: Foundation Tier	Mark	Comment
(a) (-5, 3)	B1	
(b) Point plotted at (-1, -4)	B1	
(c) 8×50 oe 400 (m)	M1 A1	Mark final answer. If units are seen they must be correct. If no marks, award SC1 for $(7 \times 50 =) 350$ or $(9 \times 50 =) 450$.
	(4)	

#6

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) (-4, 1)	B1	
(b)(i) <i>C</i> correctly marked at (1, 7)	B2	Mark intent; may be unlabelled B1 for a point that would result in a triangle and that satisfies one of the properties e.g. $(1, n)$ where $n \neq 7$ If no marks, award SC1 for a point at (4, 7).
(b)(ii) <i>F</i> correctly marked at (-4, 7)	B1	STRICT FT 'their <i>C</i> '; mark intent; may be unlabelled Allow $(-7, 7)$ or correct FT of $(-7, \text{their } 7)$
	(4)	

Coordinates: Calculator

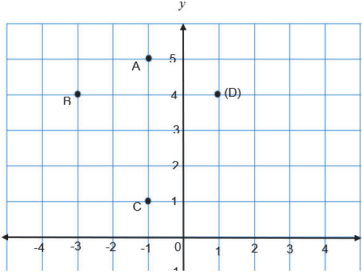
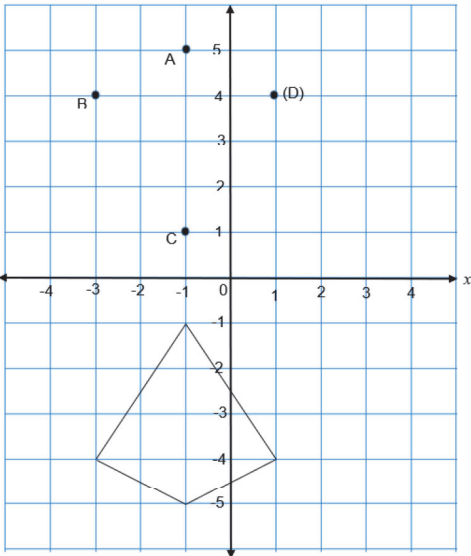
Question	Maximum Mark	Mark Awarded
#1	4	
#2	4	
#3	4	
Total	12	

Marking Scheme

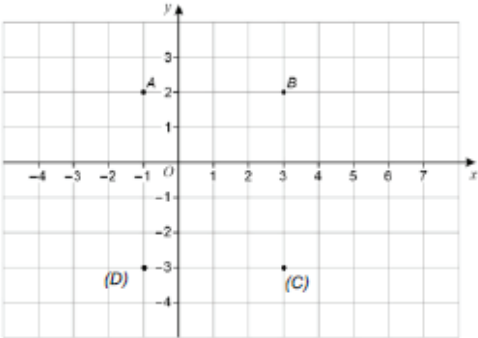
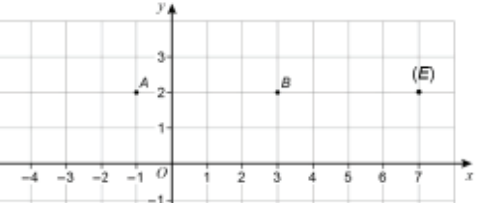
#1

(a) H correctly positioned on the diagram (3, 2)	B1	FT 'their H'
	B1	
(b) J correctly positioned on the diagram (-2, 6)	B1	FT 'their J', provided at least one negative coordinate.
	B1	
	(4)	

#2

Component 2: Foundation Tier	Mark	Comment
(a) D plotted at (1,4) 	B1	
(b) (1, 4)	B1	FT 'their D'
(c) Correct reflection in the x axis. 	B2	FT their ABCD for B2 or B1. Allow B2 for the reflection of the 4 correct points not joined. B1 for a reflection with 3 correct points. B1 for a correct reflection in the y axis.
	(4)	

#3

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	Comment
(a) (-1, -3) and (3, -3) marked 	B2	B1 for two points that make a rectangle Ignore not labelled or incorrectly labelled points if the marked points are unambiguous.
(b)(i) (7, 2) marked 	B1	
(b)(ii) (7, 2)	B1 (4)	FT 'their E'

Simplifying Terms: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
#2	2	
#3	6	
#4	3	
Total	13	

Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) $12wy$ OR $12yw$	B1	
(b) Any two terms with a difference of $5f$ e.g. $6f$ and $(1)f$	B1	Allow $5f$ and $0(f)$ OR $0(f)$ and $-5f$ B0 if either space is blank.

#2

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(b) $12w^3$	B2	Mark final answer. B1 for one of the following: $12 \times w^3$ $w^3 \times 12$ $12w^n$ where $n \neq 3$ or $n \neq 0$. $12w^n w$ mw^3 where $n \neq 12$.

#3

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a)(i) $4x - 9y$	B2	Mark final answer B1 for an expression either $4x + \dots$ or $\dots - 9y$ or for a correct answer seen then spoiled
(a)(ii) $7x + 9$	B2	Mark final answer B1 for sight of $7x + 14$; allow for e.g. $7x + 14 - 35$ or for a correct answer seen then spoiled
(a)(iii) $10x^2$	B2	B1 for either $10x^k$ where $k \neq 2$ or 0 OR kx^2 where k could be any value other than 0 or 1 e.g. allow for $\frac{20x^2}{2}$ or $20x^2 \div 2$

#4

(a)(i) $7a - 4b$	B2	Mark final answer for B2 or B1 B1 for $7a + kb$ or for $ka - 4b$
(a)(ii) $1 + 4c^2$	B1	Mark final answer

Simplifying Terms: Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
#2	1	
#3	3	
#4	2	
#5	2	
#6	2	
#7	3	
#8	1	
#9	2	
#10	2	
#11	3	
Total	23	

Marking Scheme

#1

Component 2: Foundation Tier	Mark	Comment
(a) $28x^5y^6$	B2	B1 for one of the following: kx^5y^6 $k \neq 28$ or 0 $28x^ny^6$ $n \neq 5$ or 0 or $28x^5y^m$ $m \neq 6$ or 0 $28 \times x^5 \times y^6$ $28 x^5 \times y^6$ $28 \times x^5y^6$ Mark final answer. B1 if $28x^5y^6$ seen then spoiled.

#2

Component 2: Foundation Tier	Mark	Comment
(a) $-4x$	B1	

#3

Component 2: Foundation Tier	Mark	Comment
(a)(i) $6a - 2b$	B2	Must be an expression for B2 B1 for sight of $6a$ or sight of $-2b$ B1 for $6a + -2b$ Mark final answer.
(a)(ii) 3	B1	

#4

Component 2: Foundation Tier	Mark	Comment
(a) $7x + 24$	B2	Mark final answer B1 for expanding bracket correctly $4x + 24$ or B1 for $7x + k$ providing $k \neq 0$

#5

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	
(d) $117f$	B2	B1 for sight of $112f$ or $117f^2$

#6

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	
(b) $27h^6$	B2	Mark final answer B1 for kh^6 or $27h^n$ where $k > 1$ and $n > 1$

#7

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	Comment
(a)(i) w^2	B1	
(a)(ii) $8x - 1$	B2	B1 for $8x$ or -1 in an expression with two terms Award B1 only for $8x + - 1$

#8

Component 2: Foundation Tier	Mark	Comment
(a) $5a$	B1	

#9

Component 2: Foundation Tier	Mark	Comment
(a) $8f - 3g$	B2	B1 for sight of $8f$ or $-3g$. Mark final answer.

#10

(a)(i) $3a + 7$ or equivalent	B2	B1 for either $7 \pm \dots$ or $3a \pm \dots$
-------------------------------	----	---

#11

(a) $23a$	B1	
(b) Sight of $(2a +) 27b$ and states or implies 'no'.	B2 (3)	B1 for 'No' and a partially correct reason e.g. $2a + kb$ where k is not -3 . This includes ' $-27b$ '

Substitution: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	1	
#2	1	
#3	2	
#4	2	
#5	2	
#6	2	
#7	3	
#8	2	
#9	4	
#10	4	
#11	4	
#12	7	
Total	34	

Marking Scheme

#1

Component 1: Foundation Tier	Mark	Comment
(b) – 48	B1	

#2

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(b) 24	B1	

#3

(b) 5, 19, 57	B2	B1 for any two correct If no marks then SC1 for 3, 5, 19
------------------	----	---

#4

Component 1: Foundation Tier	Mark	Comment
(a) 2	B2	B1 for sight of two correct consecutive terms from the sequence 11, 13, 15, 17, ...

#5

(b)(i) 10.5	B1	
(b)(ii) USA size – 1	B1	allow equivalent in words or e.g. USA – 1

#6

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(b)(i) 303	B1	
(b)(ii) Valid explanation e.g. '601 is not in the 3 times table.' or '601 is not a multiple of 3.' or correctly (partially) solve the equation $3(n^2 + 1) = 601$ to show n is not an integer	E1	

#7

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(d) $(150 - 20) \div 15$	M2	May be seen in stages. M2 may be implied by one of the following: $130 \div 15$ $20 + 15 \times 8 = 140$ $20 + 15 \times 8$ AND $20 + 15 \times 9$ $150 - 20 = 130$ with $8 \times 15 = 120$ M1 for one of the following: $20 + 15 \times n$ where $n > 1$ (see M0) $20 + 15 + 15 + \dots$ $150 - 20 - 15 - 15 - \dots$ (with at least two 15's seen) $150 - 20 \div 15 (= 148.666\dots)$ M0 for either: $20 + 15 \times n = 35n$ e.g. multiples of 35 is M0. $150 - 35$ $150 - 20 - 15$
8 (days)	A1	CAO An answer of 8·6(6...) or 8 r 10 implies M2 A0. Award M0 A0 for an unsupported answer of 9.
	(7)	

#8

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(Time taken =) $20 \times 8 + 90$	M1	May be seen as 2 hours 40 minutes + 90 minutes oe.
250 (minutes)	A1	Accept an answer of 4 hours and 10 minutes provided not contradicted by the answer space.
	(2)	

#9

(a) $9 \times 5 + 25$	M1	Seen or implied
(£) 70	A1	
(b) $(225 - 25) \div 5$	M1	Seen or implied
40	A1	Allow 2 marks for an embedded answer e.g. $225 = 40 \times 5 + 25$;
	(4)	

#10

(a) $800 \div 5 + 100$ si	M1	Not just for substitution , must be correct order of operations
260	A1	
(b) $(400 - 100) \times 5$ si	M1	Not just for substitution , must be correct order of operations
1500	A1	Allow embedded answer if not spoiled
	(4)	

#11

Component 1: Foundation Tier	Mark	Comment
(a) $2.5 \times 10 + 16$ oe, si	M1	
41 (minutes)	A1	
(b) $(26 - 16) \div 2.5$ oe, si	M1	implied by e.g. ' $26 - 16 = 10$, $2.5 \times 4 = 10$ ' or ' $2.5 \times 4 = 10$, $10 + 16 = 26$ '; build-up method may be used to find 10
4 (kebabs)	A1	Accept $26 = 2.5 \times 4 + 16$ for A1 provided there is no contradiction of 4
	(4)	

#12

(a)	$30 \times 50(p)$ or $30 \times 8.5 - 30 \times 8$ (£)15(.00) or equivalent	M1	or equivalent
		A1	Allow 1500p if final answer in working space or if £ on answer line is deleted.
(b)	$(30 + 2 \times 5) \times 6(.00)$ (£)240(.00)	M1	or equivalent
		A1	If no marks award SC1 for $[5.55 \times 40 =]$ (£) 222
(c)	$160 \div (30 + 2 \times 5)$ (£)4 (per hour) or equivalent 2016 Under 18	M1	seen or implied
		A1	
		B1	Implies M1 A1 provided not from wrong working
		(7)	

Substitution: Calculator

Question	Maximum Mark	Mark Awarded
#1	1	
#2	2	
#3	2	
#4	2	
#5	2	
#6	3	
#7	3	
#8	4	
#9	4	
Total	23	

Marking Scheme

#1

(c) $(15 \times -23 =) -345$	B1	CAO
------------------------------	----	-----

#2

Component 2: Foundation Tier	Mark	
(c) $(x =) 9.75$ or $9\frac{3}{4}$ or $39/4$	B2	B1 for $\frac{3 \times (24+2)}{8}$ or $\frac{3 \times 26}{8}$ or $\frac{78}{8}$ or $\frac{3 \times 24 + 3 \times 2}{8}$ or $\frac{72+6}{8}$ may be seen in stages

#3

Component 2: Foundation Tier	Mark	Comment
(c) <i>32.4 as their final answer</i>	B2	B1 for 31.2 or 1.2 or $6 \times 5.2 + 3 \times 0.4$ Do not allow $31.2x$ or $1.2y$ or $32.4xy$ or $x = 31.2$ or $y = 1.2$ Mark final answer.

#4

(c) $-2 + 6 \times 3$ $=16$	M1 A1	
--------------------------------	----------	--

#5

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	
(b) -1, 3 and 7	B2	Allow in any order. B1 for one of the following: - Any two of -1, 3, and 7 as the first 3 terms e.g. -5, -1, 3 -1, 3, 7, 11 correct sequence continued.

#6

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	Comment
(b)(i) 2.25 or $\frac{9}{4}$ or $2\frac{1}{4}$	B1	
(b)(ii) (k =) 12×26	M1	
312	A1	May be embedded

#7

Component 2: Foundation Tier	Mark	Comment
(b) $28.5 = 5R + 2 \times -4$ $36.5 = 5R$ $R = 7.3$ or $\frac{73}{10}$ or $7\frac{3}{10}$	B1 B1 B1	Allow for $28.5 = 5R + -8$ or $28.5 = 5R + 2(-4)$ (R =) $36.5 \div 5$ is awarded B1 B1 Allow an embedded answer provided not contradicted by $R \neq 7.3$. FT from $5R = a$, but if on FT it simplifies to an integer then it must be written as an integer. If rearranged first, allow FT from one error for a maximum of two marks. If no marks award SC1 for sight of 36.5 provided not from incorrect work.

#8

(a) 1.75	B1	
(b) 2880	B1	
(c) (t =) 6	B2 (4)	Award B1 for sight of $75 \div 12.5$ or $75 = 12.5 \times t$

#9

Component 2: Foundation Tier	Mark	Comment
(a) $25 \times 10.42 + 80$ $= (\pounds)340.5(0)$ ISW	M1 A1	May be seen in stages. Unsupported $(\pounds)341$ is awarded M1A0. If no marks, award SC1 for an answer of $(\pounds)367.50$ (from use of $\pounds 11.50$ not $\pounds 10.42$)
(b) $(271 - 64) \div 11.5(0)$ $= 18$ (hours)	M1 A1	May be seen in stages. Allow an embedded answer. If no marks, award SC1 for an answer of 265.43... (from $271 - 64 \div 11.5(0)$) If no marks, award SC1 for an answer of 19.86, 19.9 or 20 (from use of $\pounds 10.42$ not $\pounds 11.50$)
	(4)	

Function Machines: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	4	
#2	4	
#3	4	
#4	2	
#5	8	
Total	22	

Marking Scheme

#1

(a)(i) 15	B1	
(a)(ii) 4	B1	Accept 4.0
(a)(iii) 1	B1	
(b) $\frac{x}{2} + 3 = y$ indicated	B1	
	(4)	

#2

(a)(i) 55	B1	
(a)(ii) -1	B1	
(a)(iii) 3	B1	Allow embedded answer
(b) Square root or equivalent	B1	
	(4)	

#3

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a)(i) 45	B1	
(a)(ii) $14x + 3$	B2	Mark final answer B1 for sight of a correct expression e.g. $2x \times 7 + 3$
(b) Divide by 10 or $\div 10$ or multiply by $\frac{1}{10}$ or $\times \frac{1}{10}$ oe	B1	If number machine blank check working underneath but number machine takes precedence
	(4)	

#4

Component 1: Foundation Tier	Mark	Comment
(a) 35	B1	
(b) 14	B1	Answers may be embedded.
	(2)	

#5

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a)(i) 4.3	B1	
(a)(ii) 11	B1	
(b)(i) (2, 9) (0.5, 3) (-1, -3) (1, 5)	B3	B2 for any three points correct or B1 for any two points correct
(b)(ii) 4 correctly plotted points	B2	STRICT FT for plotting 'their coordinates' from (b)(i)' for B2 or for B1 B1 FT for any 2 or 3 correctly plotted points Mark intent, especially with decimal coordinates If more than 4 points are plotted, mark the worst 4 points
Correct line drawn at least through the 4 correct points (-1, -3) (0.5, 3) (1, 5) (2, 9)	B1	CAO NB If no points plotted but correct line drawn, allow B0 B1 B1 B1 is possible for the correct line drawn accurately through 2 or 3 correct plots only Maximum of 2 marks out of 3 if the coordinates and line are not both fully correct
	(8)	

Function Machines: Calculator

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

Marking Scheme

#1

Component 2: Foundation Tier	Mark	
(a)(i) 50·3	B1	<u>Note:</u> $\frac{503}{10}$ is awarded B0
(a)(ii) 5·4	B1	Allow embedded answer

#2

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	
(a)(i) 13	B1	May be seen on the number machine or in a calculation.
(a)(ii) (a =) 1.1	B2	May be seen on the number machine or embedded in a calculation. Award B2 unless contradicted by $a \neq 1.1$. B1 for one of the following: • $22 \div (37.5 - 17.5)$ • $22 \div a = 20$ • $20 \times a = 22$ • $a = 22 \div 20$

Expanding Brackets: Non-Calculator

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

Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) $8a + 22$ OR $2(4a + 11)$	B2	B1 for one of the following: $8a + k$ where $k \neq 0$ $ka + 22$ where $k \neq 0$ $15a - 6 - 7a + 28$ Mark final answer for B2 only. Penalise -1 for incorrect further work

#2

Component 1: Foundation Tier	Mark	Comment
(c) $23w - 6$	B2	Mark final answer. B1 for one of the following: - expanding the bracket correctly ($18w - 6$) $23w + k$ where $k \neq -6$ $aw - 6$ where $a \neq 23$

#3

Component 1: Foundation Tier	Mark	Comment
(a) $8x^2 - 4x + 10x - 5$	B2	B1 for any two terms correct; $nx^2 + 6x + m$ implies two terms correct if not from wrong working
$8x^2 + 6x - 5$	B1	Implies previous B2; FT for equivalent level of difficulty, providing a quadratic expression with 4 terms to consider and like terms in x to collect with opposite signs mark final answer except ignore '=0'

Expanding Brackets: Calculator

Question	Maximum Mark	Mark Awarded
#1	1	
#2	1	
#3	1	
#4	1	
#5	2	
#6	2	
#7	3	
#8	3	
#9	3	
Total	17	

Marking Scheme

#1

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	
(e) $72p - 24$	B1	Mark final answer

#2

Component 2: Foundation Tier	Mark	Comment
(c) $7g - 42$	B1	Mark final answer.

#3

Component 2: Foundation Tier	Mark	Comment
(b) $5m - 15$	B1	

#4

Component 2: Foundation Tier	Mark	Comment
(c) $45 - 65y$	B1	Mark final answer.

#5

Component 2: Foundation Tier	Mark	Comment
(a) $x^2 + 10x + 21$	B2	Mark final answer. B1 for sight of $x^2 + 3x + 7x + 21$ or a final answer of either $x^2 + kx + 21$, $k \neq 0$ or 10 $x^2 + 10x + c$, $c \neq 0$ or 21

#6

(a)(ii) $3x + 6$	B2	B1 for either $3x + \dots$ or $\dots + 6$
------------------	----	---

#7

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	Comment
(a) $7x^2 + 5x - 42x - 30$	B2	B1 for any three terms correct; $mx^2 - 37x + m$ implies two terms correct if not from wrong working
$7x^2 - 37x - 30$	B1	Implies previous B2; FT for equivalent level of difficulty, providing 4 terms to consider and like terms to collect

#8

$6x^2 - 16x - 21x + 56$	B2	B1 for any 2 terms correct
$6x^2 - 37x + 56$	B1	FT for equivalent level of difficulty, providing at least 3 terms to consider and like terms to collect
	(3)	

#9

(a) $3x^2 + 18xy + 5xy + 30y^2$	B2	B1 for any 2 terms correct
$3x^2 + 23xy + 30y^2$	B1	FT for equivalent level of difficulty, providing at least 3 terms to consider and like terms to collect

Factorising: Non-Calculator

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

Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
$x(3x - 4y)$	B1	Allow closing bracket to be omitted; do not ISW if they go on to 'simplify' further
	(1)	

#2

Component 1: Higher Tier	Mark	Comment
$3xy(y + 2x)$	B3	Mark final answer. B2 for any one of the following: • A correct answer seen then spoiled • $3x(y^2 + 2xy)$ • $3y(xy + 2x^2)$ • $xy(3y + 6x)$ • $3xy(y + mx)$ where $m \neq 0$ or $m \neq 2$ • $3xy(ny + 2x)$ where $n \neq 1$ or $n \neq 0$ B1 for any one of the following: • $3(xy^2 + 2x^2y)$ • $x(3y^2 + 6xy)$ • $y(3xy + 6x^2)$ • $3xy(y + \dots)$ • $3xy(\dots + 2x)$
	(3)	

#3

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) $a(3 + 7b)$	B1	

Factorising: Calculator

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

Marking Scheme

#1

Component 2: Foundation Tier	Mark	Comment
(d) $2(3x + 2)$	B1	

#2

Component 2: Foundation Tier	Mark	Comment
(d) $t(m - 3)$	B1	Mark final answer. Do not allow $t \times (m - 3)$.

#3

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	Comment
(b) $y(y + 2x)$	B1	

Forming an expression: Non-Calculator

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

Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) $4 + y$	B1	

#2

Component 1: Foundation Tier	Mark	Comment
(d) $8t$	B1	B0 for $t = 8t$

#3

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(b)(i) $w - 15$	B1	Allow for e.g. $w - 15 = x$ ml; ignore any units Do not allow for $w - 15 = -15w$ or $w - 15 = 45$ or $w - 15 = w$ etc
(b)(ii) $\frac{r}{2}$ or $\frac{1}{2}r$ or $0.5r$	B1	Allow $r \div 2$ or $\frac{1 \times r}{2}$ or $r \times \frac{1}{2}$ e.g. $r \div 2 = x$ or $\frac{r}{2}$ bird boxes ; do not allow $\frac{r \text{ bird boxes}}{2}$ or $r \div 2 = r$ or $r : 2$

#4

$4c + 15$	B2	B1 for a correct unsimplified expression e.g. $c + c + c + c + 15$ If no marks award SC1 for an answer of $3c + 15$
	(2)	

#5

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(c)(i) $k - 10$	B1	Mark final answer. Allow k mins – 10 mins $k - 10$ m k m – 10 m - Ellie = $k - 10$ $E = k - 10$ Do not allow $k = k - 10$
(c)(ii) $100t$	B1	Mark final answer. Accept $100 \times t$ or $t \times 100$ Allow $100t$ p - Dress = $100 \times t$ $D = 100 \times t$ $\pounds t = 100t$ Do not allow $t = 100t$.

#6

Component 1: Foundation Tier	Mark	Comment
(a) $x + 8$	B1	mark final answer;
(b) $6 \times x + 10(x + 8)$ $6 \times x + 10 \times x + 80$ $16x + 80$	M1 M1 A1	FT 'their $x + 8$ ', need not be binomial FT 'their $x + 8$ ', providing it is binomial FT 'their $6x + ax + b$ ', for non-zero a, b ; ignore attempts to factorise after correct answer seen; If no marks award SC2 for ($6x + 6(x + 8) \rightarrow 6x + 6x + 48$ and $12x + 48$ or ($10x + 6(x + 8) \rightarrow 10x + 6x + 48$ and $16x + 48$ or ($10x + 10(x + 8) \rightarrow 10x + 10x + 80$ and $20x + 80$ or award SC1 for the correct expansion of ' $10 \times \text{their}(x + 8)$ ' providing their $(x + 8)$ is binomial or for the correct expansion of $10(x + 8)$ or $6(x + 8)$
	(4)	

#7

Component 1: Foundation Tier	Mark	Comment
(a) $16x$	B3	B2 for $4x + 6 \times 2x$ oe B1 for any one of the following: • (each large orange costs) $2x$ (pence) • (total cost of large oranges is) $6 \times 2x$ or $2 \times 6x$ or $12x$ (pence) • (total cost of small oranges is) $4x$ (pence)
(b) $25y$ or $\frac{100y}{4}$	B2	Allow $100y \div 4$. If units are given, they must be correct for B2. B1 for $(\pounds)\frac{y}{4}$ or $(\pounds)y \div 4$ or for sight of $100y$
	(5)	

Forming an expression: Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
#2	4	
#3	2	
#4	3	
#5	4	
#6	3	
#7	3	
Total	21	

#1

#2

#3

200

#4

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	
(b) (£) $\frac{t}{3}$ or $\frac{1}{3}t$ or $0.3t$	B1	Allow $t/3$ and $0.33(\dots)t$ and $t\frac{1}{3}$. Allow use of T for t. Do not allow $t \div 3$ or $t \times \frac{1}{3}$ or $\frac{t}{3} = t$ or $0.3t$
(c) $8x + 5$	B2	Mark final answer B1 for one of the following: $8 \times x + 5$ or equivalent unsimplified expression $x8 + 5$ $8x + 5$ seen and then spoilt e.g. $8x + 5 = 13x$

#5

Component 2: Foundation Tier	Mark	Comment
(e)(i) $8x + 8x + 8x + 8x$ or $8x \times 4$ $= 32x$	M1 A1	
(e)(ii) $8x \times 8x$ or $(8x)^2$ $= 64x^2$	M1 A1	M0 for $8x^2$ If no marks in (e)(i) and (e)(ii) award SC2 for answers of $64x^2$ in (i) AND $32x$ in (ii).

#6

Component 2: Foundation Tier	Mark	Comment
(e) $10x$	B3	Award B2 for $3y + 4x$ OR $4y + 2x$ OR for a correct answer in terms of x that is not fully simplified e.g. $2x + x + 2x + x + x + x + 2x$ Award B1 for any one of: - a correct answer in terms of x and y that is not fully simplified e.g. $y + x + y + x + x + y + x$ - for recognising that $y = 2x$, may be shown on the diagram e.g. $y = x + x$ or $x = 0.5y$ An answer of $5y$ is awarded 2 marks (B3 MR -1) An answer in terms of y that is not fully simplified e.g. $y + y + y + 4 \times 0.5y$ is awarded 1 mark (B2 MR -1)

#7

(a) (i) $b - 5$ (ii) $3(b - 5)$ or $3b - 15$ ISW	B1 B1	FT 'their $(b - 5)$ ' if of equivalent difficulty
(b) Indicates 'No' AND explains that e.g. 'you can only add like terms', or equivalent.	E1	Allow e.g. 'you cannot add different letters'

Solving an equation: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	2	
#3	2	
#4	1	
#5	5	
#6	2	
#7	5	
Total	20	

Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) (x =) 24	B1	Allow embedded
(b) $5x = 15$ (x =) 3	B1 B1	FT from $5x = k$. Accept $\frac{k}{5}$, but if on FT k is a multiple of 5, final answer must be given as a whole number. Mark final answer. Allow 2 marks for an embedded answer BUT only 1 mark if contradicted by $x \neq 3$; condone poorly expressed embedded answers such as $5 \times 3 = 15 - 8 = 7$ for B2
	(3)	

#2

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(c)(i) (x =) 8	B1	Allow B1 for embedded answers provided not contradicted. e.g. B1 for $6 \times 8 = 48$. B0 for $6 \times 8 = 48 \quad x = 48$.
(c)(ii) (a =) 160	B1	Allow B1 for embedded answers provided not contradicted.

#3

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) $6x = 30$ $x = 5$	B1 B1	FT equation in the form $6x = a$. Accept $\frac{a}{6}$ but if on FT it simplifies to an integer the answer must be given as an integer. Allow B1 B1 for embedded answers provided not contradicted. e.g. B1 B1 for $6 \times 5 - 3 = 27$. B1 B0 for $6 \times 5 - 3 = 27 \quad x = 27$ B0 B0 for simply writing $30 - 3 = 27$.

#4

Component 1: Foundation Tier	Mark	Comment
(a) $(x =) 7$	B1	Mark final answer. Accepted embedded answer provided it is not later contradicted.

#5

(a) $12x - 7x = 6 + 9$ or $x = \frac{15}{5}$ or equivalent $x = 3$	B1 B1	Seen or implied FT until 2nd error Mark final answer; allow embedded answer for 2
(b) $10x + 20 - (2x - 9) = 30$ or $10(x + 2) - 2x + 9 = 30$ or better $10x - 2x = 30 - 9 - 20$ or better $x = \frac{1}{8}$ ISW	B1 B1 B1	FT until 2nd error Seen or implied For expanding at least one pair of brackets correctly FT For collecting terms FT; if FT the common error $8x = 19$, then the answer must be 2.375 or $\frac{19}{8}$, not rounded to e.g. 2.3

#6

(a) $2x = 5$ $x = \frac{5}{2}$ oe, ISW	B1 B1	FT from 'their $ax = b$ ' provided $a \neq b$ or 0 or 1 and $b \neq 0$; accept $\frac{b}{a}$ but if on FT $\frac{b}{a}$ simplifies to an integer the answer must be given as an integer. 'x =' can be omitted but must not be wrong if there. Correct answer implies first B1.
--	--------------	--

#7

(a) $-4x = 11 - 19 (= -8)$ or $4x = 19 - 11 (= 8)$ $x = 2$	B1 B1	FT until 2nd error si FT; mark final answer; allow 2 marks for $19 - 4(2) = 11$ oe
(b) $2x - 3 = 4 \times 3x$ or $\frac{2}{4}x - 3x = \frac{3}{4}$ oe, si $10x = -3$ oe $x = -\frac{3}{10}$ oe; ISW	B1 B1 B1	FT until 2nd error or separates fractions <u>and</u> collects terms FT; allow for $-\frac{10}{4}x = \frac{3}{4}$ FT 'their expression of the form $ax = b$, where $a \neq \pm 1$ and $b \neq 0$ '

Solving an equation: Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	1	
#3	2	
#4	2	
#5	2	
#6	2	
#7	2	
#8	2	
#9	2	
#10	2	
#11	5	
#12	2	
Total	27	

Marking Scheme

#1

$A = 9 \text{ (kg)}$ $B = 19.5 \text{ (kg)}$ $(A + B =) 28.5 \text{ (kg)}$	B1	Full marks will be awarded for unsupported answer of 28.5 (kg) in the answer space.
	B1	
	B1	FT 'their 9' + 'their 19.5'.
	(3)	

#2

Component 2: Foundation Tier	Mark	
$\therefore \text{ (b)}$ $(f =) 15 \cdot 3$	B1	Allow embedded answer

#3

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	
(f) $5x = 13$ $(x =) \frac{13}{5} \text{ or } 2\frac{3}{5} \text{ or } 2.6 \text{ ISW}$	B1	
	B1	Allow an embedded answer provided it is not contradicted. FT from $5x = k$ but if on FT it simplifies to an integer the answer must be given as an integer. <u>Note:</u> An answer of 2.6 is awarded B1 B1. If no marks, award SC1 for $(x =) (11 + 2) \div 5$ not $11 + 2 \div 5$

#4

Component 2: Foundation Tier	Mark	Comment
(b) $4x = 2 + 5$ or $4x = 7$ $x = 1.75$ or $7/4$ or $1\frac{3}{4}$ ISW	B1 B1	FT equation in the form $4x = a$. Accept $\frac{a}{4}$ but if on FT it simplifies to an integer the answer must be given as an integer. Allow an embedded answer. Maximum of 1 mark if the answer is not fully correct.

#5

Component 2: Foundation Tier	Mark	Comment
(d) $\frac{e}{2} = 10$ or $e - 8 = 12$ $e = 20$	B1 B1	FT from $e/2 = k$ OR $e - m = 12$ OR $e - 8 = n$ Allow 2 marks for an embedded answer BUT only 1 mark if contradicted by $e \neq 20$ If no marks, then award SC1 for $e/2 = 6 + 4$ and $e = 6 + 4 \times 2 (=14)$ seen.

#6

Component 2: Foundation Tier	Mark	Comment
(b) $3x = 1$ $(x =) \frac{1}{3}$ oe, ISW	B1 B1	Accept 0.33 or 0.3 but not 0.3. FT from $ax = 1$, $a \neq 1$ or $3x = b$ accept $\frac{1}{a}$ or $\frac{b}{3}$ but if on FT either simplifies to an integer the answer must be given as an integer. 'x =' can be omitted but must not be wrong if there. Correct answer implies first B1.

#7

Component 2: Foundation Tier	Mark	
(a) $5x = 8$ $x = 1.6$ or $\frac{8}{5}$ ISW	B1 B1	FT from $ax = 8$, $a \neq 1$ or $5x = b$ Accept $\frac{8}{a}$ or $\frac{b}{5}$ but if on FT either simplifies to an integer the answer must be given as an integer. 'x =' can be omitted but must not be wrong if there. Correct answer implies first B1.

#8

(b)(i) $(x =) 9$	B1	Accept embedded answers
(b)(ii) $(y =) 42$	B1	Accept embedded answers

#9

2011 (c) $d/5 = 12 - 2$ or $d/5 = 10$ or $d + 2 \times 5 = 12 \times 5$ $d = 50$	M1 A1 (5)	CAO. Accept embedded answers Mark final answer <i>If no marks award SC1 for an answer of $d = 70$ from $d/5 = 12 + 2$</i>
---	------------------------------------	--

#10

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	Comment
(a) $6x - x = 5 + 1$ oe $x = \frac{6}{5}$ oe, ISW	B1 B1	FT from $ax = 6$, $a \neq 1$ or $5x = b$ accept $\frac{6}{a}$ or $\frac{b}{5}$ but if on FT either simplifies to an integer the answer must be given as an integer. 'x =' can be omitted but must not be wrong if there. Correct answer implies first B1. Final answer of $x = \frac{-6}{-5}$ is B0. Maximum of 1 mark if not fully correct

#11

Component 2: Foundation Tier	Mark	Comment
(a) $5 - 11 = 5x - 2x$ or $2x - 5x = 11 - 5$ $x = -2$	B1 B1	FT from $ax = \pm 6$, $a \neq 1$ or $\pm 3x = b$ accept $\frac{\pm 6}{a}$ or $\frac{b}{\pm 3}$ but if on FT either simplifies to an integer the answer must be given as an integer. 'x =' can be omitted but must not be wrong if there. Correct answer implies first B1.
(b) $8x - 3x - 1 = 2$ or $8x = 2 + 3x + 1$ or better $5x = 2 + 1$ or better $x = \frac{3}{5}$ or equivalent fraction	B1 B1 B1	Expands the brackets Only FT from $8x - 3x + 1 = 2$ to obtain $5x = 2 - 1$ or better FT answer of $\frac{1}{5}$ or equivalent fraction only

#12

Component 2: Foundation Tier	Mark	Comment
(a) $5x - 2x = 6 - 4$ or $3x = 2$ oe $(x =) \frac{2}{3}$ oe, ISW	B1 B1	Allow 0.67 or 0.666 but not 0.66 FT from $ax = 2$, $a \neq 1$ or $3x = b$ accept $\frac{2}{a}$ or $\frac{b}{3}$ but if on FT either simplifies to an integer the answer must be given as an integer. Correct answer implies first B1 unless incorrect working seen. Maximum of 1 mark if not fully correct

Forming and solving an equation: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	5	
#2	11	
Total	16	

Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment						
(b) $5x + 7 + 6x - 9 + 8x - 27 = 180$ $19x = 209$ $x = 11$ Method to calculate all three angles e.g. $5 \times 11 + 7 \quad (= 62)$ $6 \times 11 - 9 \quad (= 57)$ $8 \times 11 - 27 \quad (= 61)$ OR calculates two angles by substitution and the third by subtracting sum from 180 All three angles correctly calculated: 62(°), 57(°), 61(°) (so not isosceles)	M1 A1 A1 M1 A1	May be seen in stages Allow M1 for $(180 - 7 + 9 + 27) \div (5 + 6 + 8)$ Implies M1 Allow $209 \div 19$ FT from $ax = b$ OR 'their 209' + 'their 19' provided M1 awarded For FT, accept answer written as a correctly simplified, improper fraction (unless it gives a whole number), mixed number or decimal. If answer is only given as a decimal, it must be correct to 1 decimal place – rounded or truncated. If $x \neq 11$ FT 'their x' provided $x \geq 4$ and M1 previously awarded. M1 implied if three angles correctly found (without working shown) from FT of 'their x' CAO If no marks, award: SC2 for $x = 11$, obtained with no working shown or trials used AND angles of 62(°), 57(°), 61(°) (so not isosceles) OR SC1 for $x = 11$ obtained with no working shown or trials used.						
<u>Alternative method – showing that if two angles are equal, angle sum is not 180(°)</u> One pair of angles equated e.g. $6x - 9 = 5x + 7$ Correct value of x obtained e.g. $x = 16$ AND correct angle sum calculated e.g. 275(°) Both other pairs of angles equated e.g. $8x - 27 = 5x + 7$ AND $8x - 27 = 6x - 9$ Both equations solved correctly $x = 11\frac{1}{3}$ AND $x = 9$ AND correct angle sums calculated e.g. $186\frac{1}{3}$(°) and 142(°)	M1 A1 M1 A2	A1 for one correct value of x and the correct angle sum provided M1 awarded. <table><tr><td>$6x - 9 = 5x + 7$ $x = 16$</td><td>$5 \times 16 + 7 = 87$ $6 \times 16 - 9 = 87$ $8 \times 16 - 27 = 101$ Total = 275(°)</td></tr><tr><td>$8x - 27 = 5x + 7$ $3x = 34$ $x = 11\frac{1}{3}$</td><td>$5 \times 11\frac{1}{3} + 7 = 63\frac{2}{3}$ $6 \times 11\frac{1}{3} - 9 = 59$ $8 \times 11\frac{1}{3} - 27 = 63\frac{2}{3}$ Total = $186\frac{1}{3}$(°)</td></tr><tr><td>$8x - 27 = 6x - 9$ $2x = 18$ $x = 9$</td><td>$5 \times 9 + 7 = 52$ $6 \times 9 - 9 = 45$ $8 \times 9 - 27 = 45$ Total = 142(°)</td></tr></table>	$6x - 9 = 5x + 7$ $x = 16$	$5 \times 16 + 7 = 87$ $6 \times 16 - 9 = 87$ $8 \times 16 - 27 = 101$ Total = 275(°)	$8x - 27 = 5x + 7$ $3x = 34$ $x = 11\frac{1}{3}$	$5 \times 11\frac{1}{3} + 7 = 63\frac{2}{3}$ $6 \times 11\frac{1}{3} - 9 = 59$ $8 \times 11\frac{1}{3} - 27 = 63\frac{2}{3}$ Total = $186\frac{1}{3}$ (°)	$8x - 27 = 6x - 9$ $2x = 18$ $x = 9$	$5 \times 9 + 7 = 52$ $6 \times 9 - 9 = 45$ $8 \times 9 - 27 = 45$ Total = 142(°)
$6x - 9 = 5x + 7$ $x = 16$	$5 \times 16 + 7 = 87$ $6 \times 16 - 9 = 87$ $8 \times 16 - 27 = 101$ Total = 275(°)							
$8x - 27 = 5x + 7$ $3x = 34$ $x = 11\frac{1}{3}$	$5 \times 11\frac{1}{3} + 7 = 63\frac{2}{3}$ $6 \times 11\frac{1}{3} - 9 = 59$ $8 \times 11\frac{1}{3} - 27 = 63\frac{2}{3}$ Total = $186\frac{1}{3}$ (°)							
$8x - 27 = 6x - 9$ $2x = 18$ $x = 9$	$5 \times 9 + 7 = 52$ $6 \times 9 - 9 = 45$ $8 \times 9 - 27 = 45$ Total = 142(°)							

#2

(a) $x + 2x + 5x (= 8x)$ 320 ÷ 8 seen or implied (x =) 40 seen or implied $40 \times 6 + 2 \times 40 \times 5 + 5 \times 40 \times 10$ $(40 \times 6 + 80 \times 5 + 200 \times 10 =$ $240 + 400 + 2000)$ (£) 2640	M1 M1 A1 M1 A1	Allow for sight of 1 + 2 + 5 (= 8) or 1 : 2 : 5 or equivalent or for 3 numbers of bulbs in the ratio 1 : 2 : 5 or for sight of x, 2x, 5x FT 'their 1 + 2 + 5'; may be implied by trials leading to e.g. 40 : 80 : 200 CAO May be implied in later working. FT 'their derived x' May be seen in stages. FT 'their derived x' × 66
(b)(i) $25 + \frac{25}{5} \times 3 (= 25 + 15) \text{ or } \frac{25}{5} \times 8 (= 5 \times 8)$ 40 (hours)	M1 A1	If no marks awarded, allow SC1 for sight of 15 (hours)
(b)(ii) $156 \div 15$ (£) 10.4(0)	M1 A1	FT 'their (40 – 25)', provided 'their 15' ≥ 11 FT ; any FT values must be rounded or truncated to 2 dp
(b)(iii) $\frac{175}{25} - 1 \text{ or } \frac{175 - 25}{25}$ (£) 6	M1 A1	May be in steps
	(11)	

Forming and solving an equation: Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	3	
#3	4	
Total	10	

Marking Scheme

#1

Sight of $x + 5 + x - 10 + x - 75 (+125)$	B1	
$3x - 80 + 125 = 360$	B1	Implies previous B1
or $3x - 80 = 360 - 125$		FT 'their $x + 5 + x - 10 + x - 75$ ' provided it contains at least 2 of the appropriate angle terms, simplified and correctly equated
or $3x = 315$		
$x = 105$	B1	CAO. An answer ' $x = 105$ ' without previous equation is awarded B0
	(3)	

#2

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	Comment
(b) A correct equation e.g. $2x + 10 = 116$ $2(x + 5) = 116$ $x + 5 = 58$ $x = 116 \div 2 - 5$	B2	B1 for $2(x + 5)$ or $2x + 10$
53	B1	If no marks award: SC2 for $x = 55.5$ following $2x + 5 = 116$ SC1 for $2x + 5 = 116$

#3

Component 2: Foundation Tier	Mark	
(b) (number of apples =) $x + 2$ si	B1	Not implied by use of numerical trials. Note: Do not award B1 for $x + 2 = 545$ oe.
$30x + 25(x + 2) = 545$ oe	M1	FT 'their $x + 2$ ' providing binomial in x ; brackets may be omitted
$55x + 50 = 545$ oe	m1	Expands the brackets and simplifies
$x = 9$	A1	CAO (no FT as needs to be an integer answer)
		If M0 A0 award either: SC2 for an answer of 9 if unsupported or from trials. SC1 if 9 only seen in embedded working.

Solving Inequalities: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
#2	3	
#3	3	
#4	3	
Total	12	

Marking Scheme

#1

(c)(i) $10x \leq 15$ or equivalent $x \leq 1.5$ or equivalent	M1 A1	Mark final answer No marks for use of "=", unless finally replaced to give $x \leq 1.5$ then award M1 A1.
(ii) Solid circle at 1.5 with arrow left	B1	STRICT FT 'their (c)(i)' provided an inequality Accept any unambiguous notation provided there is no termination (so not a line with a circle at each end)

#2

(c) Line with solid circles at both ends starting at -2 and ending at 3	B1	
(d) $2x < 4 \times 3$ $x < 6$	M1 A1	No marks for use of "=", unless finally replaced to give $x < 6$ then award M1 A1. $x \leq 6$ is A0

#3

(c)(i) $3x > 5 - 2$ oe $x > 1$ oe	M1 A1	No marks for use of "=", unless finally replaced to give $x > 1$ then award M1 A1; mark final answer
(ii) Empty circle at 1 with arrow right	B1	STRICT FT 'their (c)(i)' provided an inequality; if a line drawn rather than an arrow then there must be no idea of termination and it must extend as far as the end of the number line

#4

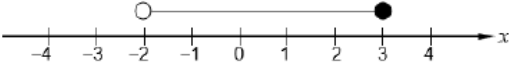
Component 1: Foundation Tier	Mark	Comment
(b)(i) $n < 45$ oe	B2	B1 for either: $2n < 99 - 9$ oe $n < k/2$, where k is a constant. Use of '=' is B0 unless finally replaced
(b)(ii) 44	B1	FT 'their 45' – 1

Solving Inequalities: Calculator

Question	Maximum Mark	Mark Awarded
#1	1	
#2	2	
#3	2	
#4	4	
#5	4	
Total	13	

Marking Scheme

#1

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	
(c) 	B1	

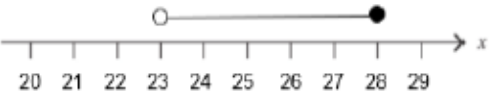
#2

Component 2: Foundation Tier	Mark	Comment
(c) Yes indicated and clear explanation e.g. '-1 should not be included.' 'x can only be 0, 1, 2 or 3' ' $1 < -1 + 2 \leq 5$ is incorrect' ' $1 < 1 \leq 5$ is incorrect'	E1	Yes may be implied if a box is not ticked Allow Yes with 'x can be 0, 1, 2 or 3'

#3

Component 2: Foundation Tier	Mark	Comment
(b) $4x > 17 + 3$ oe $x > 5$	M1 A1	Mark final answer; no marks for use of "=", unless finally replaced to give $x > 5$ then award M1 A1.

#4

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	Comment
(a) -2, -1, 0, 1, 2	B2	B1 $-2 \leq n < 3$ or -2, -1, 0, 1, 2, 3 or -1, 0, 1, 2 or -4, -3, -2, -1, 0, 1, 2, 3, 4, 5 or -2 -1 1 2
(b) A straight line with an empty circle at 23 and a solid circle at 28. 	B2	B1 for a line joining two circles in the correct position but incorrectly shaded. B1 for a correct circle at one end and a line going from it in the correct direction.
	(4)	

#5

Component 2: Foundation Tier	Mark	Comment
(b)(i)		
$11 + 5 < 4n - n$ or $n - 4n < -5 - 11$	B1	
$16 < 3n$ or $-3n < -16$	B1	Implies the first B1
$\frac{16}{3} < n$ oe or $n > \frac{16}{3}$ oe	B1	ISW. Allow $5.33... < n$ or $n > 5.33...$ If $n > 5.3$ without $n > \frac{16}{3}$ award B1 B1 B0 FT from $16 < an$ or $b < 3n$ OR $-3n < c$ or $-dn < -16$ where a, b, c and d >0 Use of equal signs is not awarded the marks unless finally replaced.
(b)(ii)		
6	B1	FT 'their $n > \frac{a}{b}$ where $a > b$

Identities: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
Total	2	

Marking Scheme

#1

$m = 3$ and $n = 6$	B2	B1 for $m = 3$ or for $n = 2 \times$ 'their m '
	(2)	

Changing the subject: Non-Calculator

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

Marking Scheme

#1

Component 1: Foundation Tier	Mark	Comment
$t - 5 = 3n$ oe, si or $\frac{t}{3} = \frac{5}{3} + n$ $n = \frac{t-5}{3}$ or $\frac{t}{3} - \frac{5}{3} = n$ oe	B1 B1	Isolates term in n ; allow e.g. $-3n = 5 - t$ or correctly divides through by 3 May be unsimplified; allow e.g. $n = (t - 5) \div 3$ or $n = \frac{5-t}{-3}$ If no marks, award SC1 for $n = \frac{t+5}{3}$ or $\frac{t-5}{3}$ (subject omitted)
	(2)	

#2

$x = 4y - 3$	B2	B1 for $4y = x + 3$ or $y - \frac{3}{4} = \frac{x}{4}$ If no marks then SC1 for a final answer of $x = 4y + 3$
	(2)	

#3

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(b) $y + 4 = 5w$ OR $-5w = -4 - y$ OR $\frac{y}{5} = \frac{5w}{5} - \frac{4}{5}$	B1	May be implied by a correct answer with no incorrect working seen.
$\frac{y+4}{5} = w$ OR $w = \frac{-4-y}{-5}$ OR $w = \frac{y+4}{5}$	B1	FT only from $5w = \pm y \pm 4$, stated or implied. Mark final answer. If no marks, allow B1B0 for any one of the following final answers: $w = (y + 4) \div 5$ (calculation not an expression) $w = y + 4 \div 5$ $\frac{y+4}{5}$ ('w' missing)

Changing the subject: Calculator

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

Marking Scheme

#1

Component 2: Foundation Tier	Mark	
$h - k = 2g$ or $2g = h - k$ or $-2g = -h + k$ $\frac{h-k}{2} = g$ or $g = \frac{h-k}{2}$ or $g = \frac{-h+k}{-2}$	B1 B1	F.T. only from $2g = \pm h \pm k$, stated or implied. Mark final answer. <u>Note</u> Allow B1B0 for $g = (h - k) \div 2$ or $g = (-h + k) \div -2$ with or without brackets. Allow B1B0 for $\frac{h-k}{2}$ or $\frac{-h+k}{-2}$ ('g' missing)
	(2)	

#2

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	
$R = \frac{p^3}{q}$	B2	B1 for one of the following: $RQ = P^3$ $R = P^3 \div Q$ $\frac{p^3}{q}$ (R omitted) B0 for $P^3 \div Q$
	(2)	

#3

(a) $w = 7/e$	B1	CAO. Accept $7/e = w$
(b) $3w + 15 - f = g$ or $3w + 15 = f + g$ $3w = f + g - 15$ $w = \frac{f+g-15}{3}$	B1 B1 B1	FT until 2 nd error occurs Mark final answer <i>Alternative method</i> $w + 5 - f/3 = g/3$ B1 $w = g/3 + f/3 - 5$ B2 Mark final answer, if further incorrect manipulation, award final B1 not final B2
	(4)	

#4

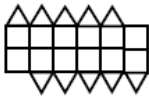
Component 2: Foundation Tier	Mark	Comment
(c) $x = \frac{a}{b}$	B1	Do not allow $x = a \div b$

Sequences: Calculator

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

Marking Scheme

#1

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	
(a)(i) A correct diagram for pattern 5 	B1	Allow a good freehand drawing. Must see internal lines.
(a)(ii) No, indicated with a correct explanation e.g. 'The number of squares and triangles are always even' 'These are odd numbers.' 'The number of squares must be even.' 'The number of triangles must be even.' '23 and 21 are not in the 2 times table.' '23 is an odd number.' '21 is an odd number.' 'They are not multiples of 2.'	E1	Allow e.g. 'There would be 1 square left over.' 'There would be 1 triangle left over.' 'There will not be an equal number of triangles on the top and bottom.' 'There will not be an equal number of squares on the top and bottom.' 'There needs to be one more of each.' Do not allow 'It is going up in 2's.' 'The number of squares and triangles are equal.' 'There will always be two more squares than triangles.'

#2

Component 2: Foundation Tier	Mark	Comment
(a)(i) 768	B1	
(a)(ii) Subtract 8 (each time)	B1	Allow -8, 'minus 8', 'take away 8' and 'going down by 8' OR $-8n + 5$ Do not allow 'a difference of 8' or $n = -8$
(b) No, indicated or implied with an appropriate reason e.g. 'Only 4 sticks are added to make the next pattern (not 5).' 'The sticks increase by 4 each time.' 'It should be 29 sticks.' 'The nth term is $4n + 1$ (not $5n$).' Pattern 7 drawn correctly AND they have stated it is not 35 sticks, or it is 29 sticks.	E1	Allow e.g. 'It's not 5 per pattern.' 'They do not go up by 5 each time.' ' $5 \times 2 = 10$ but the second pattern only has 9 sticks (so not going up in 5's).' 'Pattern 3 has 13 sticks and 13 isn't part of the 5 times table.' Do not allow e.g. 'The second pattern only has 9 sticks.' 'A stick is shared (without further explanation).'
	(3)	

#3

Component 2: Foundation Tier	Mark	Comment
(a) Lines 26 AND Circles 17	B2	Award B1 for any one of: - Lines 26 OR Circles 17. 26 and 17 seen as answers without labels. - Lines 17 AND Circles 26 (answers reversed). - Lines 21 AND Circles 14 (pattern 4).
(b) Unambiguously stating or implying 'No' with a reason, e.g. 'when the lines are odd the circles are even' 'when the circles are even the lines are odd' 'both numbers are even' 'one should be even and one should be odd' '(pattern 7 has) 36 lines and 23 circles' 'the circles pattern goes up in 3's but it doesn't start on a multiple of 3'	E1	Allow e.g. 'should be 23 circles' 'the difference is always an odd number' 'The circles sequence is 17, 20, 23, 26' '36 lines has 23 circles' 'there cannot be 24 circles' Do not allow 'add three to the circles' 'the circles pattern is going up in threes'
	(3)	

#4

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	Comment
(a)(i) 	B1	
(a)(ii)	B1	
7	B1	
(a)(iii)	B1	
98	B1	
(b) (Number of triangles =) $2 \times$ number of squares oe	B1	ISW Allow e.g. ' $2 \times$ squares' 'double the number of squares' 'squares doubled' ' $S \times 2$ ' Do not allow e.g. ' $\times 2$ ' ' $2 \times$ pattern number' 'for each square there are two triangles' 'one square and two triangles' 'the triangles go up in two's the square's go up in one's'
	(4)	

#5

(a) 73 AND 87	B1	
(b) 'multiply the previous term by 2'	E1	Accept ' $\times 2$ ', 'double', 'multiply by 2' or equivalent
(c)(i) ($15^2 + 3 =$) 228	B1	
(c)(ii) Shows, by considering differences, that the 7 th term is 52. e.g $28 + 11 + 13 = 52$	B1	
(c)(iii) Indicates 'Hannah' and explains that working out $100^2 + 3$ is quicker than repeated addition.	E1	
	(5)	

Nth term (linear sequence): Non-Calculator

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

Marking Scheme

#1

Component 1: Foundation Tier	Mark	Comment
(b) $5n - 1$ or $-1 + 5n$	B2	Mark final answer B1 for: $5n + k$, where $k \neq -1$ - a correct answer seen and then spoiled. - an unsimplified expression which would lead to $5n - 1$ Allow the use of other variables for n for B1 or B2

#2

(a) $8n - 5$	B2	B1 for $8n + k$ where $k \neq -5$
-----------------	----	-----------------------------------

#3

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) $9n - 8$ oe	B2	Allow e.g. $n9 - 8$ or $n \times 9 - 8$ B1 for $9n + k$ where $k \neq -8$

Nth term (linear sequence): Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
Total	2	

Marking Scheme

#1

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	
(a)(iii) $2n + 2$ or $2(n + 1)$	B2	Condone the use of other letters e.g. $2x + 2$ B1 for $n^2 + 2$ or $2n \pm k$ where $k \neq 0$

Sequences (other): Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	1	
Total	1	

Marking Scheme

#1

Component 1: Foundation Tier	Mark	Comment
(a) 55	B1	

Factorising (Quadratic): Non-Calculator

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

Marking Scheme

#1

:		
(a) $(x-3)(x+5)$	B2	B1 for $(x \dots 3)(x \dots 5)$
(b) $3, -5$	B1	Correct or correct FT; FT 'their $(x \pm a)(x \pm b)$ ' from (a)
	(3)	

#2

(b)(i) $(x-3)(x-7)$ oe	B2	If not B2, award B1 for $(x \dots 3)(x \dots 7)$ or for $x(x-7) - 3(x-7)$ oe; ignore '= 0' If no marks, award SC1 for factors $x-3$ and $x-7$ stated but not as a product
---------------------------	----	---

Factorising (Quadratic): Calculator

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

Marking Scheme

#1

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	
(a) $(x - 8)(x + 3)$ ISW	B2	B1 for a pair of brackets (using integers only) that expand to give, $x^2 - 5x \pm \dots$ or $x^2 \pm \dots - 24$ e.g. $(x + 8)(x - 3)$ or $(x - 6)(x + 1)$

#2

Component 2: Foundation Tier	Mark	
(c) $(x + 1)(x + 4)$	B2	B1 for a pair of brackets that expand to give $x^2 + 5x \pm a$ OR $x^2 \pm bx + 4$

#3

(b) $(b + 5)(b - 5)$	B1	CAO
----------------------	----	-----

#4

(b) $(x - 9)(x - 4)$	B2	B1 for $(x \dots 9)(x \dots 4)$
----------------------	----	---------------------------------

Solving a quadratic equation: Non-Calculator

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

Marking Scheme

#1

(d) No with valid explanation. e.g. 'The correct answers are $x = 3$ and $x = 2$.' or 'She has forgotten to put $x - 3$ and $x - 2$ equal to 0 and solve.' or 'When $x = -3$ the value is 30.' or 'The correct solution is $x = 3$ or $x = 2$.'	E1	Do not accept e.g. 'The values do not work' without supporting evidence. Allow 'No and $(-3 - 3) = -6$ and $(-2 - 2) = -4$ '
---	----	---

#2

Component 1: Foundation Tier	Mark	Comment
(b)(i) $(x - 3)(x - 7)$ oe	B2	If not B2, award B1 for $(x \dots 3)(x \dots 7)$ or for $x(x - 7) - 3(x - 7)$ oe; ignore '= 0' If no marks, award SC1 for factors $x - 3$ and $x - 7$ stated but not as a product
(b)(ii) $x = 3, x = 7$	B1	STRICT FT from 'their $(x \dots a)(x \dots b)$ ' where a and b are constants;

Solving a quadratic equation: Calculator

Question	Maximum Mark	Mark Awarded
#1	3	
Total	3	

Marking Scheme

#1

(c) $(w + 9)(w - 2) = 0$ $w = -9$ with $w = 2$	B2 B1	B1 for $(w \dots 9)(w \dots 2)$ STRICT FT from 'their pair of brackets' <i>Alternative:</i> $(w =) \{-7 \pm \sqrt{7^2 - 4 \times 1 \times -18}\} / 2$ M1 $(=) (-7 \pm \sqrt{121}) / 2$ A1 $w = -9$ with $w = 2$ A1 <i>Accept trial & improvement method only if both solutions are found correctly for B3</i>
---	------------------	--

Difference between two squares: Calculator

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

Marking Scheme

#1

Component 2: Foundation Tier	Mark	Comment
^(c) (y + 20)(y – 20)	B1	Allow (x + 20)(x – 20) oe

#2

(b) (b + 5)(b – 5)	B1	CAO
-----------------------	----	-----

Straight-line Graphs: Non-Calculator

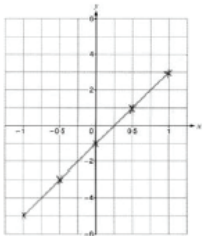
Question	Maximum Mark	Mark Awarded
#1	3	
#2	4	
#3	4	
#4	4	
#5	2	
Total	17	

Marking Scheme

#1

$m = 2$ si	B1	could be gradient = 2
$c = 1$ si	B1	could be y-intercept = 1
$y = 2x + 1$	B1	Implies all 3 marks
	(3)	

#2

Component 1: Foundation Tier	Mark	Comment
(a) $-3, -1$	B2	B1 for each
(b) Correct <u>line</u> from at least $(-1, -5)$ to $(1, 3)$ 	B2	Mark intention of straight-line. B1 for correct truncated line (at least the length of 2 points) OR B1 FT for 4 or 5 points plotted correctly (using their table of values)
	(4)	

#3

Component 1: Foundation Tier	Mark	Comment
(a) $3, -1, -3$	B2	B1 for any two correct
(b) Correct line drawn between $(-2, 5)$ and $(2, -3)$	B2	B1 for one of the following: - a correct line drawn but not over full domain. 5 correct plots 5 correct plots strict FT 'their table'
	(4)	

#4

Component 1: Foundation Tier	Mark	Comment
(a) $-6, -3, 0$	B2	B1 for any two correct.
(b) Correct line drawn from $x = -2$ to $x = 2$	B2	B1 for either: - a correct line drawn but not over full domain. 5 points plotted correctly. FT 'their table'.
	(4)	

#5

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a)(ii) $y = 3x + 2$ only indicated	B1	
(b) $y = 4x$ only indicated	B1	

Straight-line Graphs: Calculator

Question	Maximum Mark	Mark Awarded
#1	5	
#2	6	
Total	11	

Marking Scheme

#1

(a) (0, 1)	B1	
(b)(i) All three points correctly plotted	B1	
(b)(ii) $y=5$	B1	FT from 'their points' provided it is a straight line.
(c) Indicates (5,11) AND (20, 41) AND (31,63)	B2 (5)	B1 for 2 correct co-ordinates and none incorrect, or 3 correct and 1 incorrect.

#2

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	Comment
(a) 2 6	B1	
(b) Correct line for $-3 \leq x \leq 3$ drawn	B2	B1 for at least 3 of the points from their table plotted correctly
(c) (0, 5)	B1	
(d) The line $x = 2$ drawn	B1	
(e) (2, 7)	B1	
	(6)	

Parallel and Perpendicular Gradients: Non-Calculator

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

Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
$y = k - 4x$ with $k \neq 12$	B1	Accept the equation of a different parallel line in any form e.g. $2y = -8x$
	(1)	

#2

Component 1: Foundation Tier	Mark	Comment
Correctly rewriting the equations in the form $y = mx + c$ $y = 4x + 3$ AND $y = 4x - 6.5$ (so lines parallel)	B3	B2 for: - one correct equation and a correct but incomplete rearrangement of the other seen e.g. $y = 4x - 6.5$ and $3y = 12x + 9$ - both in the form $y = 4x + c$ with an error in one constant term, provided constants aren't equal. e.g. $y = 4x - 6.5$ and $y = 4x + 9$ B1 for: - one correct equation $y = 4x - 6.5$ or $y = 4x + 3$ - two equations of the form $y = 4x + \dots$ with errors in both constant terms or no constant terms. <i>Allow all marks for equivalent complete methods e.g. $6y - 24x = 18$ AND $6y - 24x = -39$ or $(3y = 12x + 9$ AND $3y = 12x - 19.5)$ and a clear statement that the two equations are of the same form and the only difference is the constant, so they are parallel.</i>
	(3)	

Quadratic Graphs: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	7	
#2	4	
Total	11	

Marking Scheme

#1

(a)	<table><tr><td>x</td><td>-2</td><td>-1</td><td>-0.5</td><td>0</td><td>1</td></tr><tr><td>y</td><td>1</td><td>-1</td><td>-1.25</td><td>-1</td><td>1</td></tr></table>	x	-2	-1	-0.5	0	1	y	1	-1	-1.25	-1	1	B2	B1 for any two correct
x	-2	-1	-0.5	0	1										
y	1	-1	-1.25	-1	1										
(b)	All 5 correct points plotted correctly and joined with a smooth curve	B2	Mark intent B1 for a smooth curve at least through 3 correct pairs of coordinates or for all of their 5 pairs of coordinates plotted correctly Allow 2 marks here if curve correct even if there is a slip in their table												
(c)	$x = -\frac{1}{2}$ or	B1	Equation must be stated; check graph; not for $x = -\frac{1}{2}$ $y = -1.25$												
(d)	(x =) 0.5 to 0.7 , -1.5 to -1.7	B2	or FT 'their curve' B1 FT for one correct root If their curve has more than 2 roots, they must give all their solutions for B2 and may omit one solution only for B1.												

#2

Component 1: Foundation Tier	Mark	Comment
(b)(i) -8	B1	Allow (0, -8) or $y = -8$
(b)(ii) (-1, -9)	B2	B1 for each. If no final coordinate given, allow: - B2 for an unambiguous $x = -1$ AND $y = -9$ seen in the working - B1 for an unambiguous $x = -1$ OR $y = -9$ seen in the working If no marks, award SC1 for (-9, -1).
(b)(iii) $x = -4, x = 2$	B1	If answer line is not completed, allow -4, 2, but do not allow (-4, 2)

Quadratic Graphs: Calculator

Question	Maximum Mark	Mark Awarded
#1	5	
Total	5	

Marking Scheme

#1

(a) 3	B1	Accept (0, 3) Do not accept (3, 0)
(b) -12	B1	Accept (-3, -12) Do not accept (-12, -3)
(c) (1, 4)	B1	Do not accept '4' or (4, 1)
(d) (-1, 0) and (3, 0)	B2 (5)	With no extra coordinates B1 for sight of '-1' and '3'

Reciprocal Graphs: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	6	
Total	6	

Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
*(a)(i) Valid explanation e.g. 'There is no value for which $0 \times \dots = 1$ ' or '1 cannot be divided by 0' or 'Because if one of them is zero, the product would be zero not 1'.	E1	Allow e.g. ' $x = \frac{1}{y}$, $y = \frac{1}{x}$ if x or y can be zero these have no value' Do not allow e.g. 'Because then the value could not be 1' without further explanation
(a)(ii) Correct graph: One branch in 1st quadrant, not touching either axis and correct shape One branch in 3rd quadrant, not touching either axis and correct shape	B2	For 2 marks, must be 2 distinct curves; allow some slight curving back at ends B1 for either branch correct If no marks, SC1 for both branches correct but joined e.g. with a straight line.
(a)(iii) inversely	B1	allow poor spelling; allow 'inverse' or 'not directly' or 'not in direct' or 'not direct' or 'not' or 'indirectly' Do not allow e.g. 'invertional' or 'inversamental'
(b) 5×0.1^2 oe, si	M1	Substitutes and rearranges; may be in stages; implied by e.g. $\frac{V}{0.1^2} = 5$, $\frac{V}{0.2} = 5$, $V = 5 \times 0.2$ (must be clear that '0.2' is what they think is 0.1^2)
0.05 oe	A1	Implies M1
	(6)	

Identifying Types of Graphs: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
Total	2	

Marking Scheme

#1

Unambiguously matches the graphs to the equations. Graph 2 $y = x + 1$ Graph 3 $y = 1 - x^2$ Graph 4 $y = 1 - x$ Graph 5 $y = x^2 - 1$	B2 (2)	Award B1 for 2 or 3 correct unambiguously matched graphs.
---	----------------------	--

Distance-Time Graphs: Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	7	
Total	7	

Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a) Q indicated and a valid explanation e.g. 'Line Q is not as steep as line P.' or 'A bike should be quicker than walking.'	E1	Must not contain incorrect comments but ignore irrelevant comments Allow e.g. Q indicated and 'Nicky took longer' Do not allow e.g. 'Alf was on a bicycle' only
(b)(i) 3 correct lines drawn: (15 40, 0) to (15 45, 0.5) (15 45, 0.5) to (15 57, 0.5) (15 57, 0.5) to (16 00, 1.5)	B3	Accept freehand lines, dashed lines or curves joining points for full marks for part marks (speed is not necessarily constant so lines do not have to be ruled, although they may be); ignore a horizontal line from (15 30, 0) to (15 40, 0) Ends of lines must be within $\frac{1}{2}$ a square radially of where they should be B1 for the line joining (15 40, 0) to (15 45, 0.5) B1FT for ('their 15 45', 'their 0.5') to ('their 15 45'+12, 'their 0.5') B1FT for ('their 15 45+12', 'their 0.5') to ('their 15 40' + 20, 1.5)
(b)(ii) 15 (minutes)	B2	B1 for $\frac{1}{4}$ hour or clear evidence of a correct interpretation of the speed in minutes e.g. 2 km in 60 minutes or 1 km in 30 minutes
(b)(iii) Correct line drawn: (16 00, 1.5) to (16 15, 2)	B1	FT ('their 15 40 + 20', 1.5) to ('their 15 40 + 20' + 'their 15 mins', 2); NB not a strict FT of their (b)(ii);
	(7)	

Distance-Time Graphs: Calculator

Question	Maximum Mark	Mark Awarded
#1	7	
Total	7	

Marking Scheme

#1

(a) $30 \div 2$ = 15 (km/h)	M1 A1	
(b) Valid description, e.g. 'stopped' or equivalent	E1	
(c) (i) Between 11:30 and 12:00 (ii) Explain e.g. 'the line is steepest'	B1 E1	
(d) Joining (12:00,50) to (13:00,60) Joining (13:00,60) to (14:00, 90)	B1 B1 (7)	This section may be a straight line or curved. FT 'their first line' If no marks, award SC1 for (12:00,50) to (13:00,40) to (14:00, 10)

Simultaneous Equations (Graphically): Non-Calculator

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

Marking Scheme

#1

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
(a)(i) Answer in range 0.8 to 0.9	B1	Allow answer in range 0.8 to 0.9 and $\frac{5}{6}$ but do not allow $\frac{5}{6}$ only (question requires use of graph); must be the only answer not for coordinates as final answer

#2

Component 1: Foundation Tier	Mark	Comment
(a) $x = 0.7$ or 0.8 $y = 1.4$ or 1.5	B1 B1	If no marks award SC1 for one of the following: - a value of x between 0.7 and 0.8 (including $\frac{7}{9}$) <u>and</u> a value of y between 1.4 and 1.5 (including $1\frac{4}{9}$ or $\frac{13}{9}$), - correct values given as coordinates in the working lines, - correct answers, written to 1 decimal place, reversed.

#3

(a) $x = -1.6$ or -1.7 $y = 1.3$ or 1.4	B1 B1	If no marks then SC1 for a value of x between -1.6 and -1.7 and a value of y between 1.3 and 1.4 or for correct values given as coordinates
--	--------------	--

Simultaneous Equations (algebraic): Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	2	
Total	2	

Marking Scheme

#1

(b) $x = 3$ $y = 2$	B1 B1	
---------------------------	----------	--

Simultaneous Equations (algebraic): Calculator

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

Marking Scheme

#1

Component 2: Foundation Tier	Mark	Comment
(d)		No marks for T&I; no marks for an unsupported answer.
Method to eliminate an unknown e.g. equal coefficients AND appropriate addition or subtraction	M1	Allow one error in one term, not in the equated coefficients
or rearranges one equation and substitutes into the other		
Finds one unknown	A1	CAO; $x = 3.5$, $y = -0.5$
Finds the other unknown	A1	FT 'their x ' or 'their y ' used in one of their equations

#2

Component 2: Foundation Tier	Mark	Comment
(c)		No marks for T&I; no marks for an unsupported answer.
Method to eliminate an unknown e.g. equal coefficients and subtraction	M1	Allow one error in one term, not in the equated coefficients if appropriate
or rearranges one equation and substitutes into the other		
Finds one unknown	A1	CAO; $x = 2$, $y = -3$
Finds the other unknown	A1	FT 'their x ' or 'their y ' used in one of their equations

Simultaneous Equations (forming and solving): Non-Calculator

Question	Maximum Mark	Mark Awarded
#1	5	
Total	5	

Marking Scheme

#1

(b) $2a + 3c = 72$ and $3a + c = 66$ Method to eliminate an unknown e.g. equal coefficients and subtraction Finds one unknown Finds the other unknown (£)15(.00)	B1 M1 A1 A1 B1	May use other letters or words throughout this part FT their equations provided one is correct and the other is linear in the same pair of unknowns or rearranges one equation and substitutes into the other Allow one error in one term, not in the equated coefficients CAO; $a = 18$ or $c = 12$ FT 'their a' or 'their c' used in one of their equations FT $2('their\ derived\ a') + 2('their\ derived\ c') - 45$ provided $2('their\ derived\ a') + 2('their\ derived\ c')$ is greater than 45
		<u>Alternative method:</u> Adult ticket costs £18, child ticket costs £12 found using trials B4 (£)15(.00) FT $2('their\ derived\ a') + 2('their\ derived\ c') - 45$ provided $2('their\ derived\ a') + 2('their\ derived\ c')$ is greater than 45 B1

Simultaneous Equations (forming and solving): Calculator

Question	Maximum Mark	Mark Awarded
#1	5	
#2	6	
Total	11	

Marking Scheme

#1

$7a + 2g = 6(.)15$ AND $5a + 8g = 9(.)19$ Method to eliminate variable, e.g. equal coefficients and method to find second variable First variable Second variable (£)4.99	B1 M1 A1 A1 B1 (5)	Both equations are required for the award of B1 FT provided at least one equation is correct and the other is of equivalent difficulty. Allow 1 error in one term, not one with equal coefficients $a = 67(p)$ or $a = (£ 0).67$ or $g = 73(p)$ or $g = (£ 0).73$ FT their first variable provided M1 previously awarded CAO, not FT
---	---	---

#2

$6c + 3r = 24(.)60$ AND $5c + 2r = 18(.)60$ Method to solve simultaneous equations, allow an error but not in the equated variable with an attempt to subtract First variable correct Method to calculate second variable Second variable correct $(40 - (7c+5r) = 40 - 34.40 =)$ $(£)5.6(0)$ or $560(p)$	B1 M1 A1 m1 A1 B1 (6)	Both equations given, c & r may be other letters, words are accepted FT provided at least one equation is correct and consistent place value, with equivalent level of difficulty Allow 1 error in one term, not one with equal coefficients Accept in £ or p Curtain £2.20 Rail £3.80 FT their first variable provided M1 previously awarded Accept in £ or p FT 'their c' and 'their r' provided M1 previously awarded If units are given they must be correct <i>Unsupported answers, no marks</i>
--	--	---