






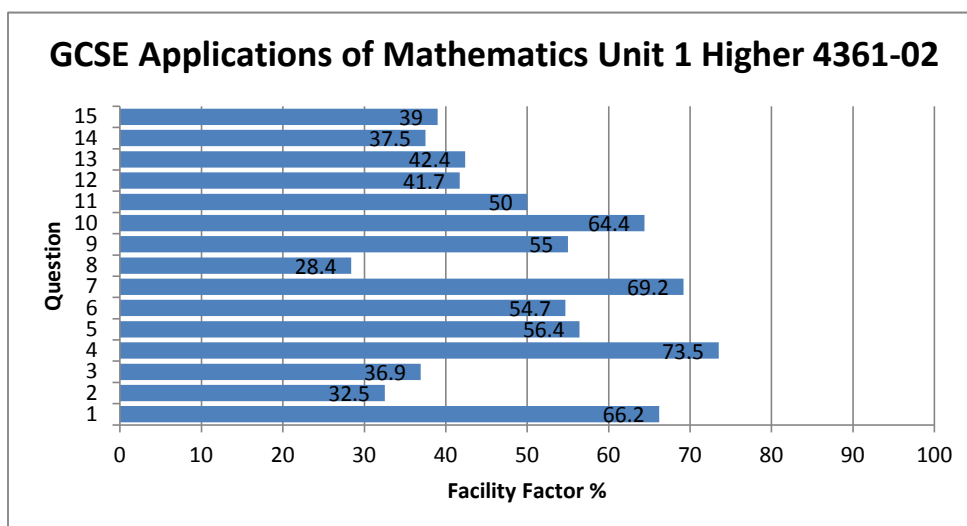


GCSE Applications of Mathematics Unit 1 Higher 4361-02

All Candidates' performance across questions

 Question Title	 N	 Mean	 S D	 Max Mark	 F F	 Attempt %
1	434	2.6	1	4	66.2	100
2	429	2.3	2.4	7	32.5	98.8
3	427	1.5	1.2	4	36.9	98.4
4	432	6.6	2.1	9	73.5	99.5
5	432	4.5	2.3	8	56.4	99.5
6	432	3.8	1.9	7	54.7	99.5
7	432	4.8	1.7	7	69.2	99.5
8	396	1.4	2	5	28.4	91.2
9	428	2.7	1.5	5	55	98.6
10	432	6.4	3.4	10	64.4	99.5
11	413	3.5	2.3	7	50	95.2
12	413	1.3	1.1	3	41.7	95.2
13	423	3.8	3.3	9	42.4	97.5
14	429	3.7	3.1	10	37.5	98.8
15	408	1.9	1.8	5	39	94



1. A survey is to be carried out to find the popularity of buying books with various age groups of the general population.

The survey is carried out by asking people questions as they come out of a book shop.
Two questions from the survey questionnaire are shown below.

1. How old are you? Put a tick in the box.	
under 20	<input type="checkbox"/>
20 to 30	<input type="checkbox"/>
30 to 40	<input type="checkbox"/>
older than 40	<input type="checkbox"/>
2. Do you buy books? Put a tick in the box.	
Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

- (a) Explain why this may be a biased survey. [1]

.....

.....

.....

- (b) State a criticism about the design of question 1 in the survey. [1]

.....

.....

.....

- (c) Write a question with a selection of answer boxes, to find out how much people are prepared to pay for a paperback book. [2]

.....

.....

.....

.....

.....

.....

.....

(b) State a criticism about the design of question 1 in the survey.

[1]

you can tick 2 boxes ~~because~~ if
~~you are~~ you are 30 years old.

(c) Write a question with a selection of answer boxes, to find out how much people are prepared to pay for a paperback book.

[2]

How much are you
prepared to pay for
a paperback book?
tick one box.

☐ £1 - £2

☐ £3 - £4

☐ £5 - £6

☐ more than £6

(b) State a criticism about the design of question 1 in the survey.

[1]

you can tick 2 boxes ~~because~~ if
~~you are~~ you are 30 years old.



1

(c) Write a question with a selection of answer boxes, to find out how much people are prepared to pay for a paperback book.

[2]

How much are you
prepared to pay for
a paperback book?
tick one box.

☐ £1 - £2

☐ £3 - £4

☐ £5 - £6

☐ more than £6



1

3

(b) State a criticism about the design of question 1 in the survey.

[1]

there's not enough range in the age question.

(c) Write a question with a selection of answer boxes, to find out how much people are prepared to pay for a paperback book.

[2]



<input type="checkbox"/> £3 - £3.99	<input type="checkbox"/> £8 - £8.99
<input type="checkbox"/> £4 - £4.99	<input type="checkbox"/> £9 - £9.99
<input type="checkbox"/> £5 - £5.99	<input type="checkbox"/> ≥ £10
<input type="checkbox"/> £6 - £6.99	
<input type="checkbox"/> £7 - £7.99	

(b) State a criticism about the design of question 1 in the survey.

[1]



there's not enough range in the age question.



(c) Write a question with a selection of answer boxes, to find out how much people are prepared to pay for a paperback book.

[2]



☐ £3 - £3.99 ☐ £8 - £8.99
☐ £4 - £4.99 ☐ £9 - £9.99
☐ £5 - £5.99 ☐ ≥ £10
☐ £6 - £6.99
☐ £7 - £7.99



question?

1

2

- (b) As the gas pipe continues towards the next town, it has to make a 30° turn so that it follows the road, as shown in the sketch.

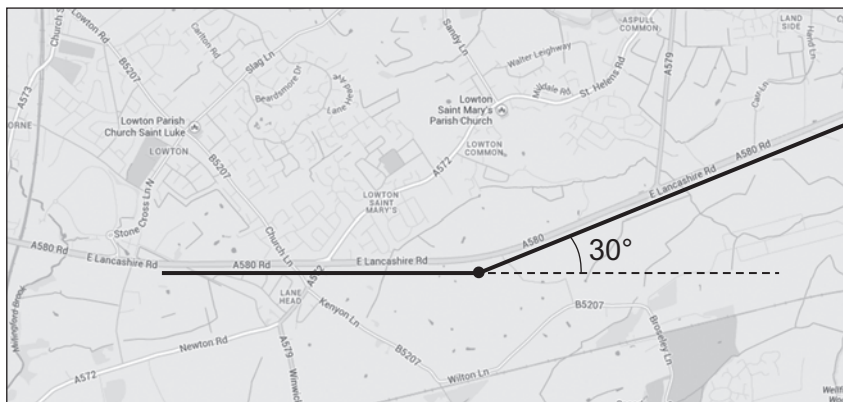


Diagram not drawn to scale

Using a pair of compasses and a ruler, construct a line that shows the direction of the gas pipe as it follows the road after the 30° turn.
You must show all of your construction lines and arcs.

[3]

_____●

- (b) As the gas pipe continues towards the next town, it has to make a 30° turn so that it follows the road, as shown in the sketch.

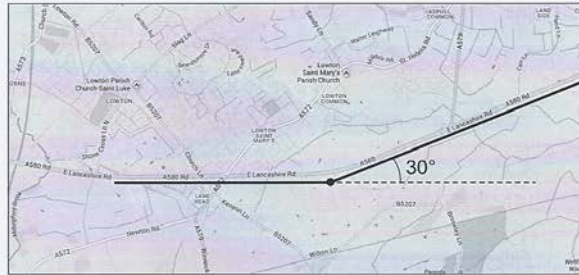


Diagram not drawn to scale

Using a pair of compasses and a ruler, construct a line that shows the direction of the gas pipe as it follows the road after the 30° turn.
You must show all of your construction lines and arcs.

[3]



- (b) As the gas pipe continues towards the next town, it has to make a 30° turn so that it follows the road, as shown in the sketch.

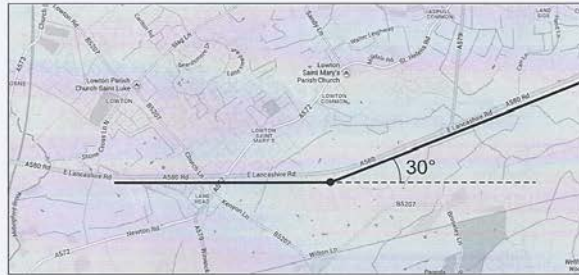


Diagram not drawn to scale

Using a pair of compasses and a ruler, construct a line that shows the direction of the gas pipe as it follows the road after the 30° turn.
You must show all of your construction lines and arcs.

[3]



0

2

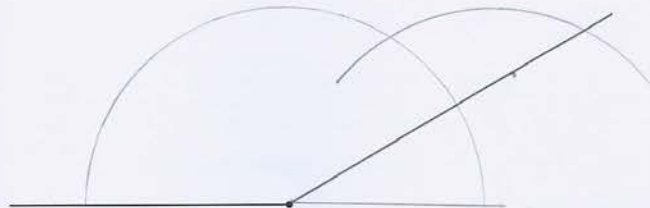
- (b) As the gas pipe continues towards the next town, it has to make a 30° turn so that it follows the road, as shown in the sketch.



Diagram not drawn to scale

Using a pair of compasses and a ruler, construct a line that shows the direction of the gas pipe as it follows the road after the 30° turn.
You must show all of your construction lines and arcs.

[3]



- (b) As the gas pipe continues towards the next town, it has to make a 30° turn so that it follows the road, as shown in the sketch.

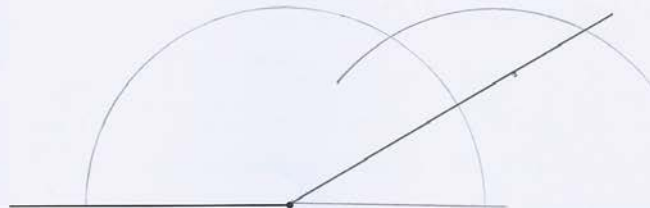


Diagram not drawn to scale

Using a pair of compasses and a ruler, construct a line that shows the direction of the gas pipe as it follows the road after the 30° turn.
You must show all of your construction lines and arcs.

[3]

4361
020005



60° M1
MO
AO

5

3. Bikes are built around a frame.



Below is a scale drawing of a bike frame.

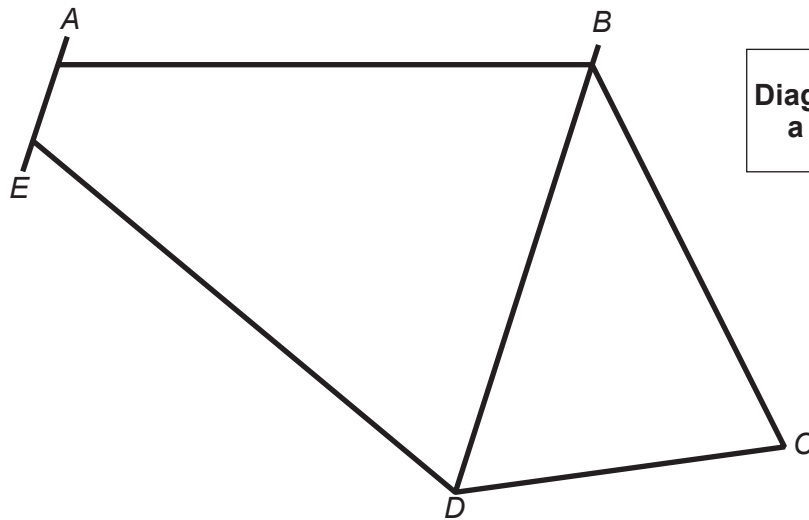


Diagram drawn to
a scale of 1:8

- (a) Write down an approximate length of the cross bar AB .
Give your answer in **metres**.

[2]

.....

.....

.....

.....

- (b) Is AE parallel to BD ?
Use angle facts to give a reason for your answer.

[2]

.....

.....

.....

3. Bikes are built around a frame.



Below is a scale drawing of a bike frame.



Diagram drawn to a scale of 1:8

- (a) Write down an approximate length of the cross bar AB.
Give your answer in metres.

[2]

56cm

0.56 m

- (b) Is AE parallel to BD?
Use angle facts to give a reason for your answer.

[2]

angle E is 110° , and ~~and~~ angle D is 70° .
 $110 + 70 = 180^\circ$
They are parallel.

3. Bikes are built around a frame.



Below is a scale drawing of a bike frame.



- (a) Write down an approximate length of the cross bar AB .
Give your answer in metres.

[2]

56cm

0.56 m

- (b) Is AE parallel to BD ?
Use angle facts to give a reason for your answer.

[2]

angle E is 110° , and ~~and~~ angle
 D is 70° . $110 + 70 = 180^\circ$
They are parallel.

3. Bikes are built around a frame.



Below is a scale drawing of a bike frame.

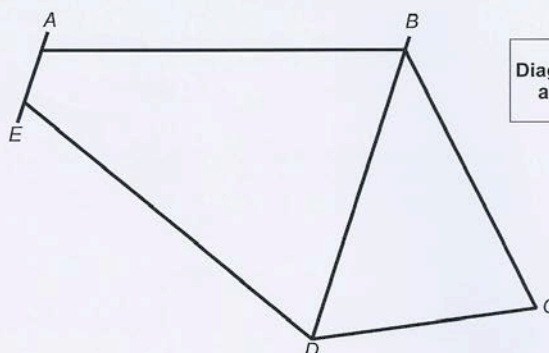


Diagram drawn to
a scale of 1:8

- (a) Write down an approximate length of the cross bar AB.
Give your answer in **metres**.

[2]

$$7.2\text{cm} \times 8 = 57.6\text{cm}$$

- (b) Is AE parallel to BD?
Use angle facts to give a reason for your answer.

[2]

No, because the DBC angle isn't equivalent to the EAB angle, so eventually, they will meet.

3. Bikes are built around a frame.



Below is a scale drawing of a bike frame.

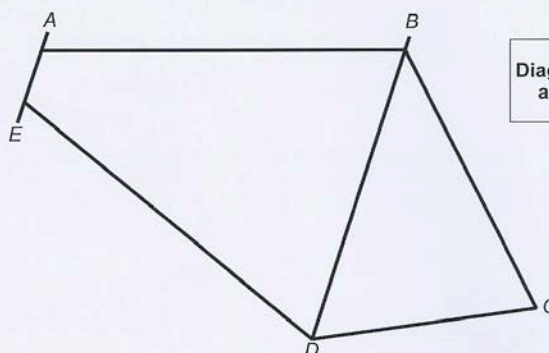


Diagram drawn to a scale of 1:8

- (a) Write down an approximate length of the cross bar AB.
Give your answer in **metres**.

[2]

$$7.2\text{m} \times 8 = 57.6\text{m}$$



- (b) Is AE parallel to BD?
Use angle facts to give a reason for your answer.

[2]

No, because the DBC angle isn't equivalent to the EAB angle, so eventually, they will meet.

