AQA

Surname _____

Forename(s) _____

Centre Number _____

Candidate Number _____

Candidate Signature _____

I declare this is my own work.

GCSE
MATHEMATICS

F

Foundation Tier Paper 2 Calculator

8300/2F

Friday 8 November 2024 Morning

Time allowed: 1 hour 30 minutes

At the top of the page, write your surname and forename(s), your centre number, your candidate number and add your signature.

[Turn over]

N 0 V 2 4 8 3 0 0 2 F 0 1

MATERIALS

For this paper you must have:

- **a calculator**
- **mathematical instruments**
- **the Formulae Sheet (enclosed).**

INSTRUCTIONS

- **Use black ink or black ball-point pen. Draw diagrams in pencil.**
- **Answer ALL questions.**
- **You must answer the questions in the spaces provided. Do not write on blank pages.**
- **If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).**
- **Do all rough work in this book. Cross through any work you do not want to be marked.**

INFORMATION

- **The marks for questions are shown in brackets.**
- **The maximum mark for this paper is 80.**
- **You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.**

ADVICE

In all calculations, show clearly how you work out your answer.

DO NOT TURN OVER UNTIL TOLD TO DO SO

Answer ALL questions in the spaces provided.

1 (a) **A linear sequence starts**

4 7 10 13

Write down the next number in this sequence.
[1 mark]

Answer _____

1 (b) **A different linear sequence starts**

19 14 9 4

Write down the next number in this sequence.
[1 mark]

Answer _____

1 (c) **Here is another sequence.**

3 6 12 24

Write down the term-to-term rule for this sequence. [1 mark]

Answer _____

[Turn over]

2 **Here is a price list.**

Soap	**£2.00**
Candle	**£4.55**
Lip scrub	**£1.75**
Body cream	**£3.80**

2 (a) **Work out the cost of three candles. [1 mark]**

_____

_____

Answer £ _____

2 (b) **Sal has £7.50**

He wants to buy one soap and one body cream.

Does he have enough money to also buy one lip scrub?

Tick a box.

☐ **Yes**

☐ **No**

Show working to support your answer.
[2 marks]

_____

_____

_____

_____

_____

_____

6

3 (a) **Solve** $5x = 30$
[1 mark]

$x =$ _____

3 (b) **Solve** $-2 + y = 10$
[1 mark]

$y =$ _____

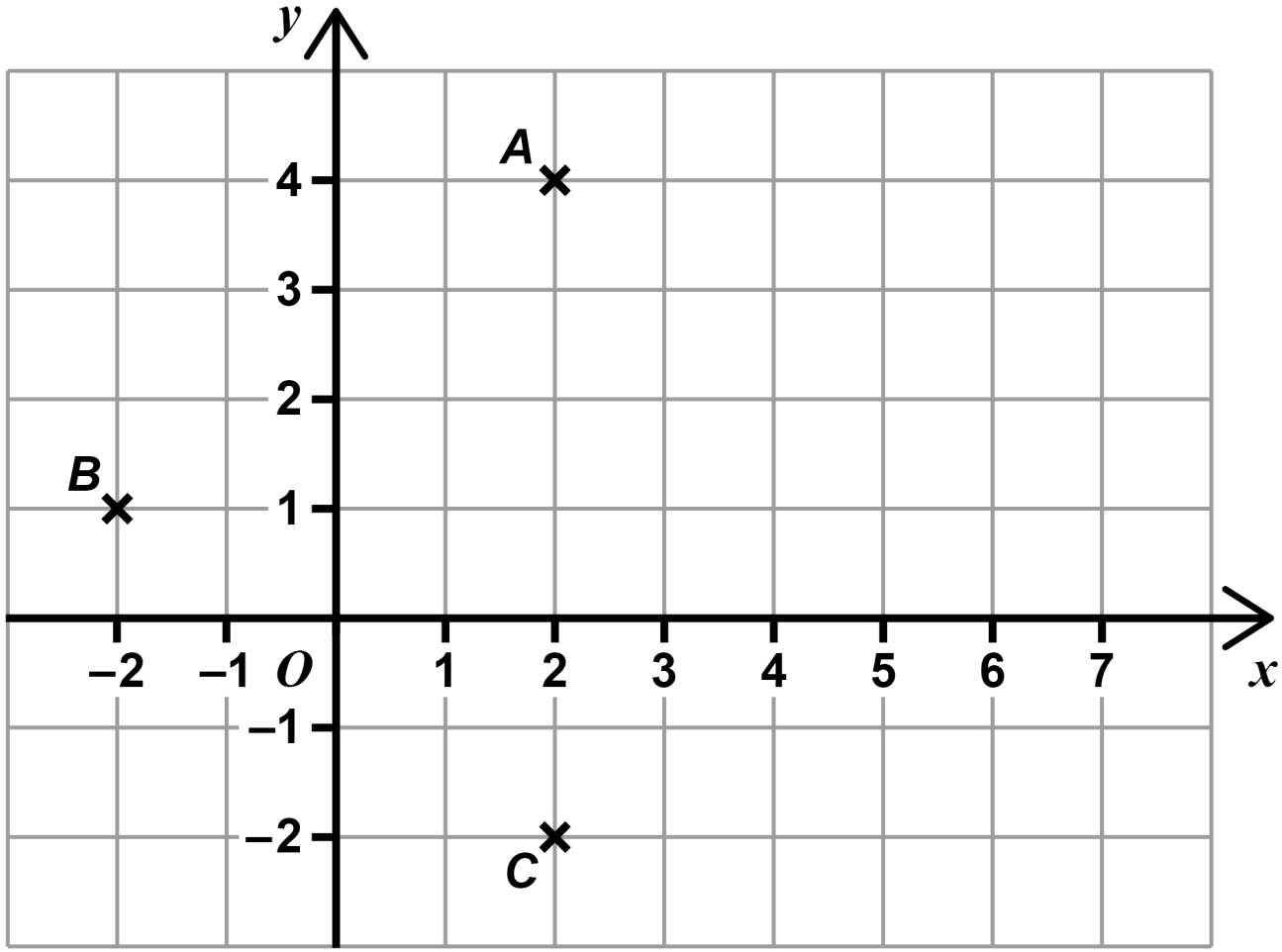
3 (c) **Simplify fully** $\frac{20w}{4w}$

[2 marks]

Answer _____

[Turn over]

4 **Points *A*, *B* and *C* are plotted on a grid.**



4 (a) **Write down the coordinates of *C*. [1 mark]**

Answer (_____ , _____)

4 (b) Write down the coordinates of the midpoint of *AC*. [1 mark]

Answer (_____ , _____)

4 (c) Plot point *D* on the grid so that *ABCD* is a rhombus. [1 mark]

[Turn over]

7

5 **Here are five numbers.**

14.2 15.1 16.5 16.7 18.0

5 (a) **Work out the range. [1 mark]**

_____

_____

_____

Answer _____

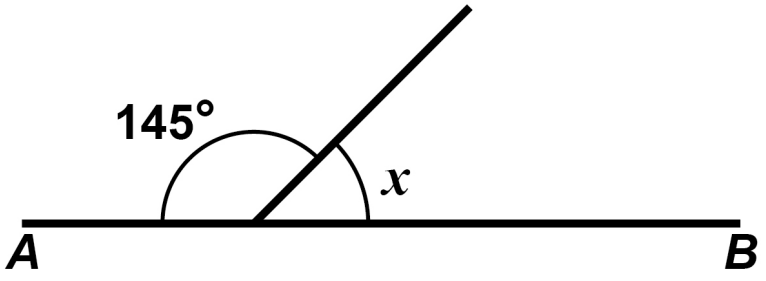
5 (b) Work out the mean. [2 marks]

Answer _____

[Turn over]

6 (a) ***AB*** **is a straight line.**

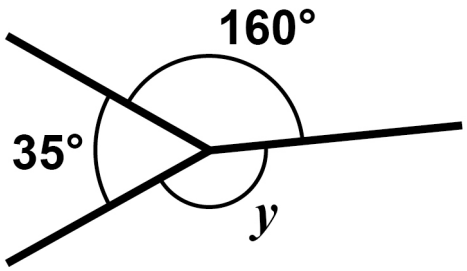
The diagram is not drawn accurately.



Work out the size of angle x. [1 mark]

x = _____ °

6 (b) The diagram is not drawn accurately.



Work out the size of angle y. [2 marks]

_____

_____

_____

_____

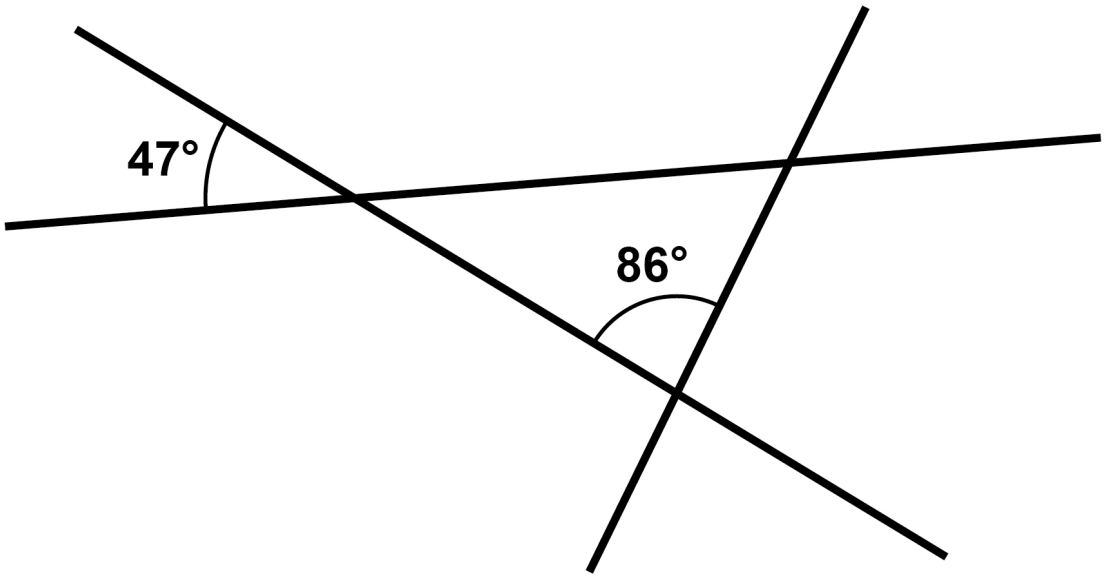
y = _____ °

[Turn over]

6

6 (c) **Three straight lines intersect as shown.**

The diagram is not drawn accurately.



What type of triangle is made?

You MUST show your working. [3 marks]

Answer _____

[Turn over]

7 **The table shows information about the packs of juice a family has.**

NUMBER OF PACKS	NUMBER OF CARTONS IN A PACK
5	8
16	3

The family drinks 4 cartons of juice each day.

In total, how many days will their packs last?
[3 marks]

Answer _____ **days**

[Turn over]

6

8 **100 people voted in an election for Jo, Kim or Liam.**

The pictogram shows the results for Jo and Kim.

KEY: ◯ represents 8 people

Jo	◯ ◯ ◯ ◯ ◯ ◯
Kim	◯ ◯ ◯ ◯ ◐
Liam	

Complete the pictogram. [3 marks]

[Turn over]

9 **Callum is making pizza.**

He can choose three DIFFERENT toppings from

- **ham (H)**
- **sweetcorn (S)**
- **onion (O)**
- **mushrooms (M).**

List ALL the possible options for the three toppings.

The first one has been done for you. [2 marks]

H S O

5

10 (a) Write $\frac{3}{8}$ as a percentage. [1 mark]

Answer _____ %

10 (b) Work out $\frac{15}{32}$ as a decimal.

Give your answer to 2 decimal places.
[2 marks]

_____

_____

Answer _____

[Turn over]

11 **Tick ONE box for each statement. [3 marks]**

	TRUE	MAY BE TRUE	NOT TRUE
If a number is > 0 the number is positive	☐	☐	☐
If a number is $\leqslant 3$ the number is 1	☐	☐	☐
If a number is $\geqslant 5$ the SMALLEST possible value of the number is 5	☐	☐	☐

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[Turn over]

12 (a) **Work out the value of $x^2 + 7x$ when $x = -4$**
[2 marks]

Answer _____

12 (b) **Rearrange $y = w - 1$ to make w the subject.**
[1 mark]

_____

_____

_____

w = _____

12 (c) **Simplify fully $4(a + 2) + a$**
[2 marks]

_____

_____

_____

_____

Answer _____

[Turn over]

11

13 **The time Shaz takes to run a race is 1 minute 28 seconds LESS than 2 hours.**

Work out her time in hours, minutes and seconds. [2 marks]

Answer

_____ **hour**

_____ **minutes**

_____ **seconds**

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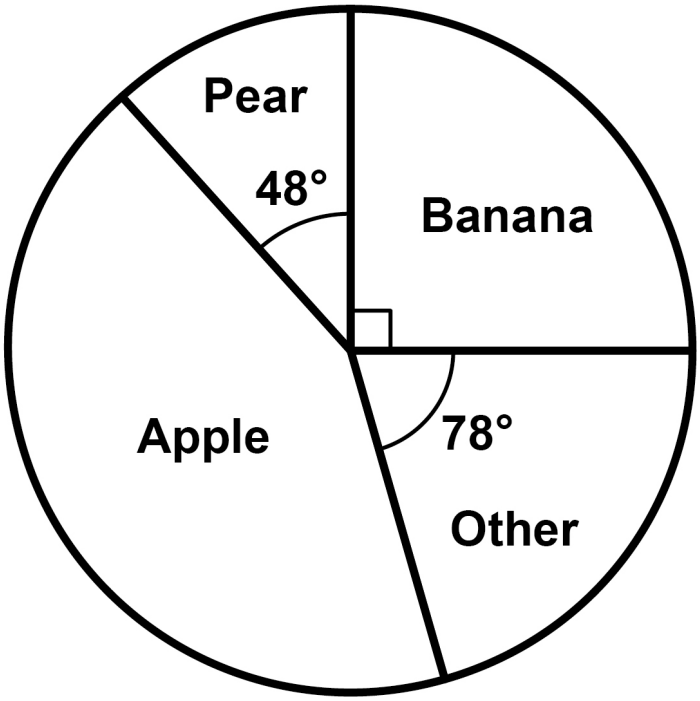
[Turn over]

14 **Some people were asked to choose their favourite fruit.**

The pie chart shows information about the results.

The diagram is not drawn accurately.



120 people chose Banana.

How many people chose Apple? [4 marks]

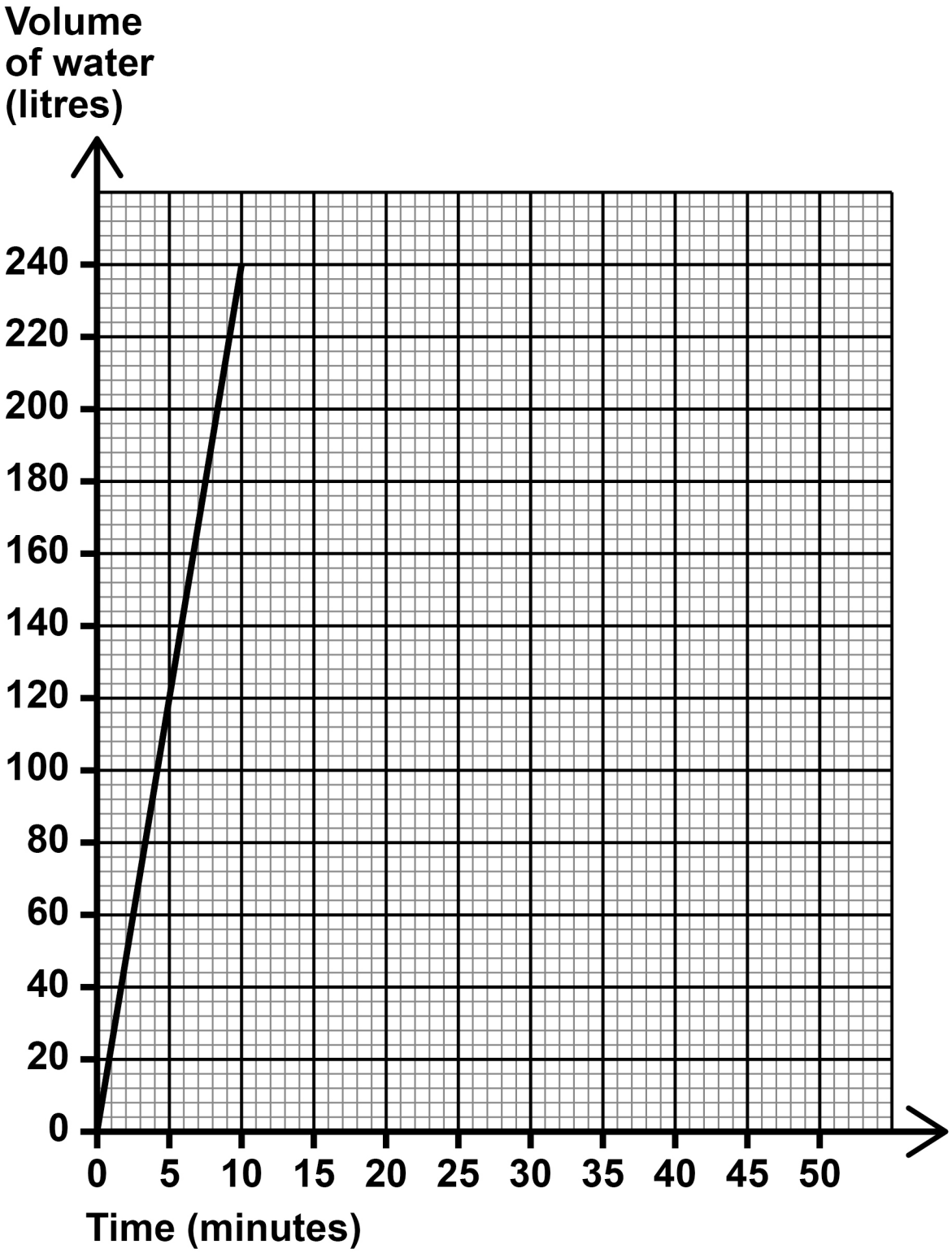
Answer _____

[Turn over]

6

15 **The graph represents the volume of water in a bath.**

The bath is full after 10 minutes.



15 (a) **Work out the rate at which the bath is filled.**

State the units of your answer. [2 marks]

_____

_____

_____

Answer _____

15 (b) **After the bath is full,**

the volume of water stays constant for 20 minutes

then

all the water empties out at a constant rate in 12 minutes.

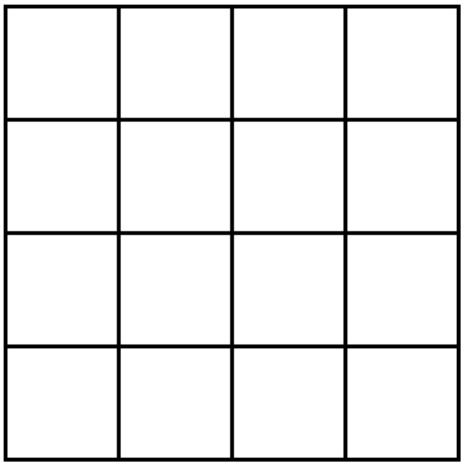
Show this information on the graph. [2 marks]

[Turn over]

16 **In the grid below, shade ONE QUARTER of the squares**

so that the grid has exactly TWO lines of symmetry.

Shade complete squares only. [2 marks]



6

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[Turn over]

17 **A map has a scale of 1 : 4000**

On the map, the distance from a station to a museum is 7 cm

Is the ACTUAL distance from the station to the museum MORE than 300 m?

Tick a box.

☐ **Yes**

☐ **No**

Show working to support your answer.
[3 marks]

18 X is inversely proportional to Y.

Circle the correct statement. [1 mark]

X is directly proportional to Y

X is directly proportional to $\frac{1}{Y}$

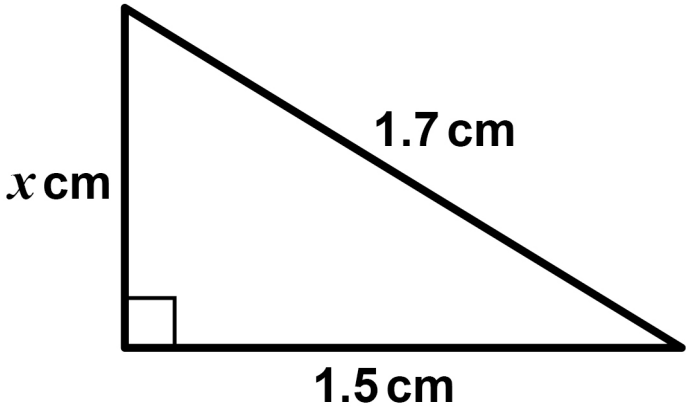
X is directly proportional to $2Y$

X is directly proportional to $\sqrt{Y}$

[Turn over]

19 **Here is a right-angled triangle.**

The diagram is not drawn accurately.



Use Pythagoras' theorem to show that $x = 0.8$
[2 marks]

6

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[Turn over]

20 **Beth and Lynn each spin the same biased coin a number of times.**

The table shows information about the results.

	BETH	LYNN
NUMBER OF SPINS	125	80
RELATIVE FREQUENCY OF HEADS	0.32	0.35

20 (a) **How many MORE Heads did Beth spin than Lynn? [2 marks]**

_____

_____

_____

_____

_____

_____

Answer _____

20 (b) **Lynn says,**

"My estimate of the probability of the coin landing on Heads must be the best, because 0.35 is greater than 0.32"

Is she correct?

Tick a box.

☐ **Yes**

☐ **No**

Give a reason for your answer. [1 mark]

_____

_____

_____

_____

_____

_____

21 **Some oil has**

- **a mass of 537 g**
- **a density of 895 000 g/m^3**

1 m^3 = 1000 litres

Work out the volume of the oil.

Give your answer in litres. [2 marks]

Answer _____ **litres**

5

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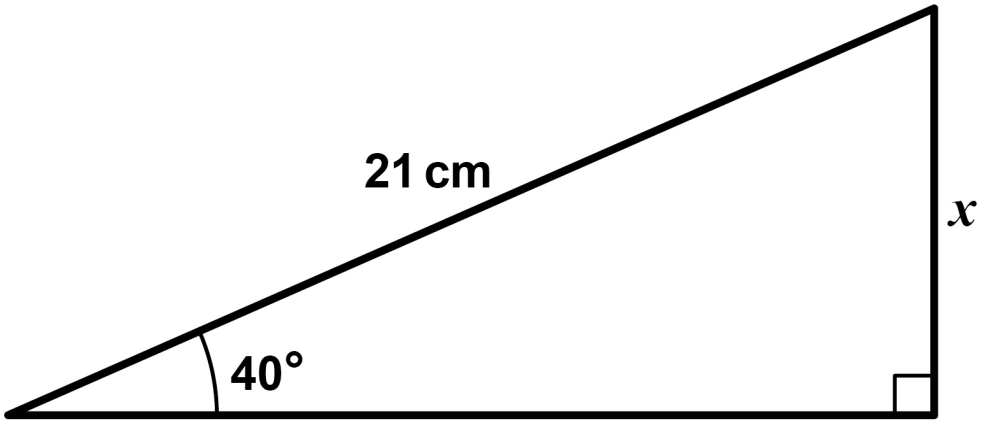
[Turn over]

22 **Use trigonometry to work out the value of x.**
[3 marks]

The diagram is not drawn accurately.



_____

_____

_____

Answer _____ **cm**

23 **The length of a wall is 9 metres to the nearest metre.**

Complete the error interval for the length of the wall. [2 marks]

Answer _____ **m** $\leqslant$ **length** $<$ _____ **m**

[Turn over]

24 **384 000 electric cars were sold this year.**

This is 20% MORE than last year.

How many were sold LAST YEAR? [3 marks]

_____

_____

_____

_____

_____

_____

Answer _____

25 **Here are three terms.**

xy x^2 $5y^2$

Alec multiplies two of these terms.

Work out the THREE possible fully simplified answers. [3 marks]

Answer _____

Answer _____

Answer _____

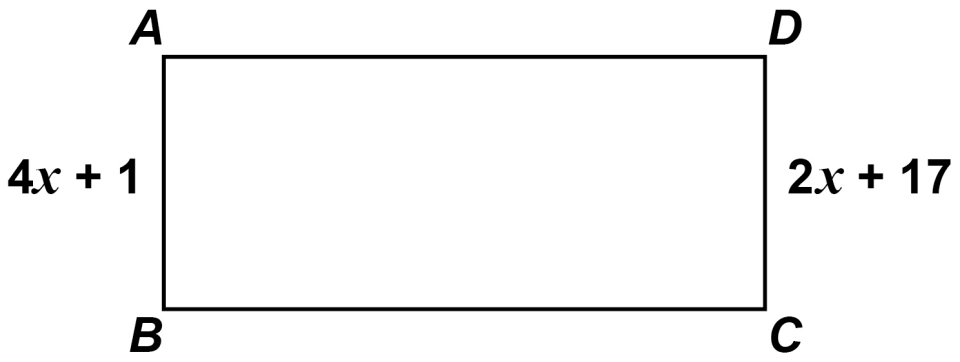
[Turn over]

11

26 **Here is a rectangle.**

All measurements are in centimetres.

The diagram is not drawn accurately.



***AB* : *BC* = 1 : 3**

Work out the value of the area. [5 marks]

Answer _____ cm^2

END OF QUESTIONS

5

Additional page, if required.

Write the question numbers in the left-hand margin.

Additional page, if required.

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For Examiner's Use	
Pages	Mark
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8–11	
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48–49	
TOTAL	

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