A

AQA

Surname _____

Other Names _____

Centre Number _____

Candidate Number _____

Candidate Signature _____

I declare this is my own work.

GCSE

MATHEMATICS

F

Foundation Tier **Paper 2 Calculator**

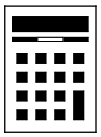
8300/2F

Time allowed: 1 hour 30 minutes

At the top of the page, write your surname and other names, your centre number, your candidate number and add your signature.

[Turn over]

For this paper you must have:
- **a calculator**
- **mathematical instruments.**



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 **Circle the factor of 32 [1 mark]**

16 **12** **3** **64**

2 y **is 3 more than** x**.**

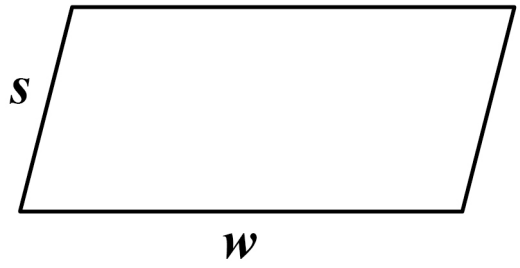
Circle the correct equation. [1 mark]

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

3 **Circle the value of 0.15 as a fraction. [1 mark]**

$\frac{1}{5}$ $\frac{1}{6}$ $\frac{3}{20}$ $\frac{3}{50}$

4 **Here is a parallelogram.**



Circle the expression for the PERIMETER.
[1 mark]

$2s + 2w$ **$s + w$** **sw** **$2sw$**

5 **Work out the value of $a^2 - 4a$ when $a = 10$**
[2 marks]

Answer _____

6 **16 people were asked to name their favourite fruit juice.**

Here are the results.

Favourite juice	Frequency
Apple	6
Grapefruit	1
Orange	4
Mango	5

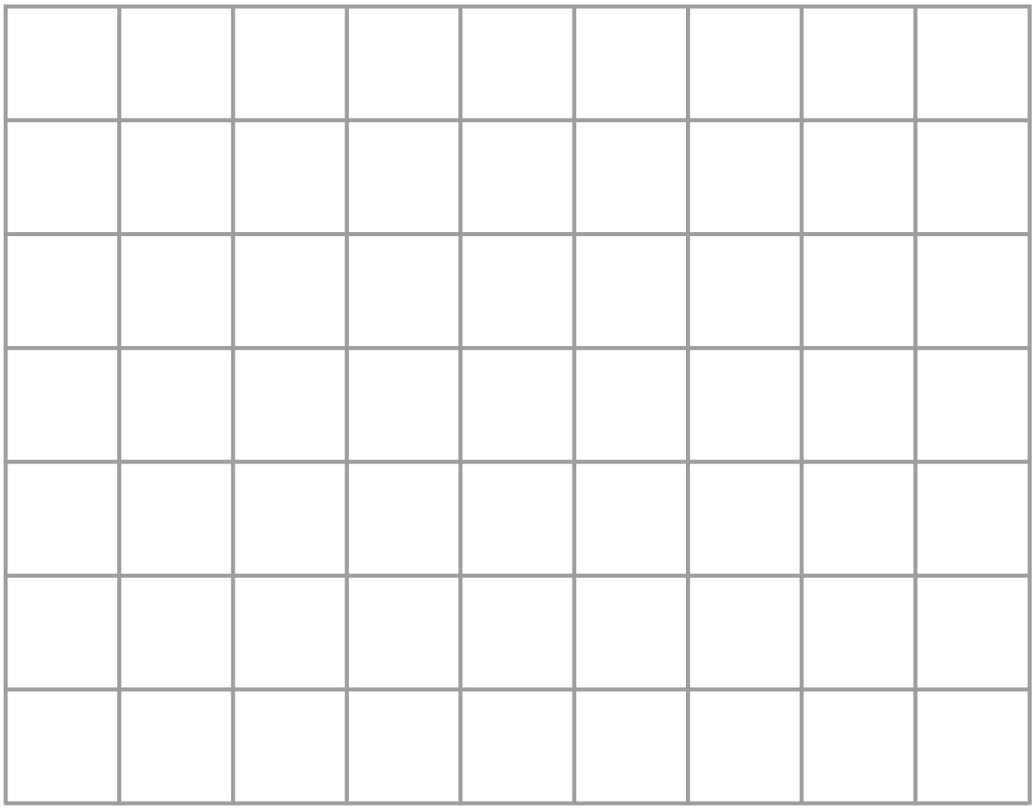
6 (a) **One of the people was picked at random.**

Work out the probability that their favourite juice was orange OR mango. [1 mark]

Answer _____

6 (b) On the grid, draw a bar chart to represent the results. [3 marks]

Favourite juice



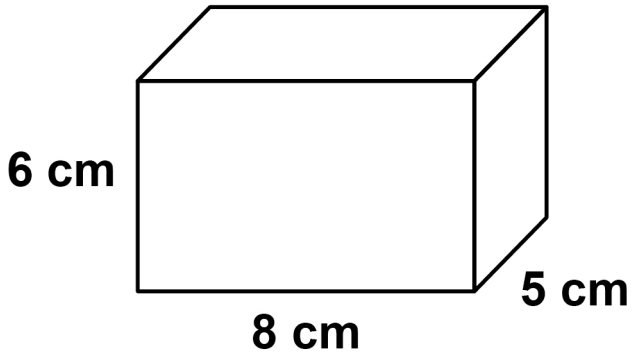
[Turn over]

7 **6 cakes cost £10.74**

Work out the cost of 11 of these cakes.
[2 marks]

Answer £ _____

8 Here is a cuboid.



Work out the volume. [1 mark]

Answer _____ cm^3

[Turn over]

7

9 **Work out two numbers that**

are multiples of 9

and

have a difference of 54

[2 marks]

Answer _____ **and** _____

10 **Convert 11.2 kilometres into miles.**

Use 8 km = 5 miles [2 marks]

Answer _____ **miles**

[Turn over]

11 **Annie spends these amounts in four shops using £20 notes, £10 notes and £5 notes.**

Shop A	**£65**
Shop B	**£40**
Shop C	**£115**
Shop D	**£75**

In each shop she

pays the exact amount

uses the SMALLEST possible number of notes.

Work out the total number of each note she uses.
[3 marks]

Number of £20 notes _____

Number of £10 notes _____

Number of £5 notes _____

[Turn over]

7

12 A sports team played 40 games.

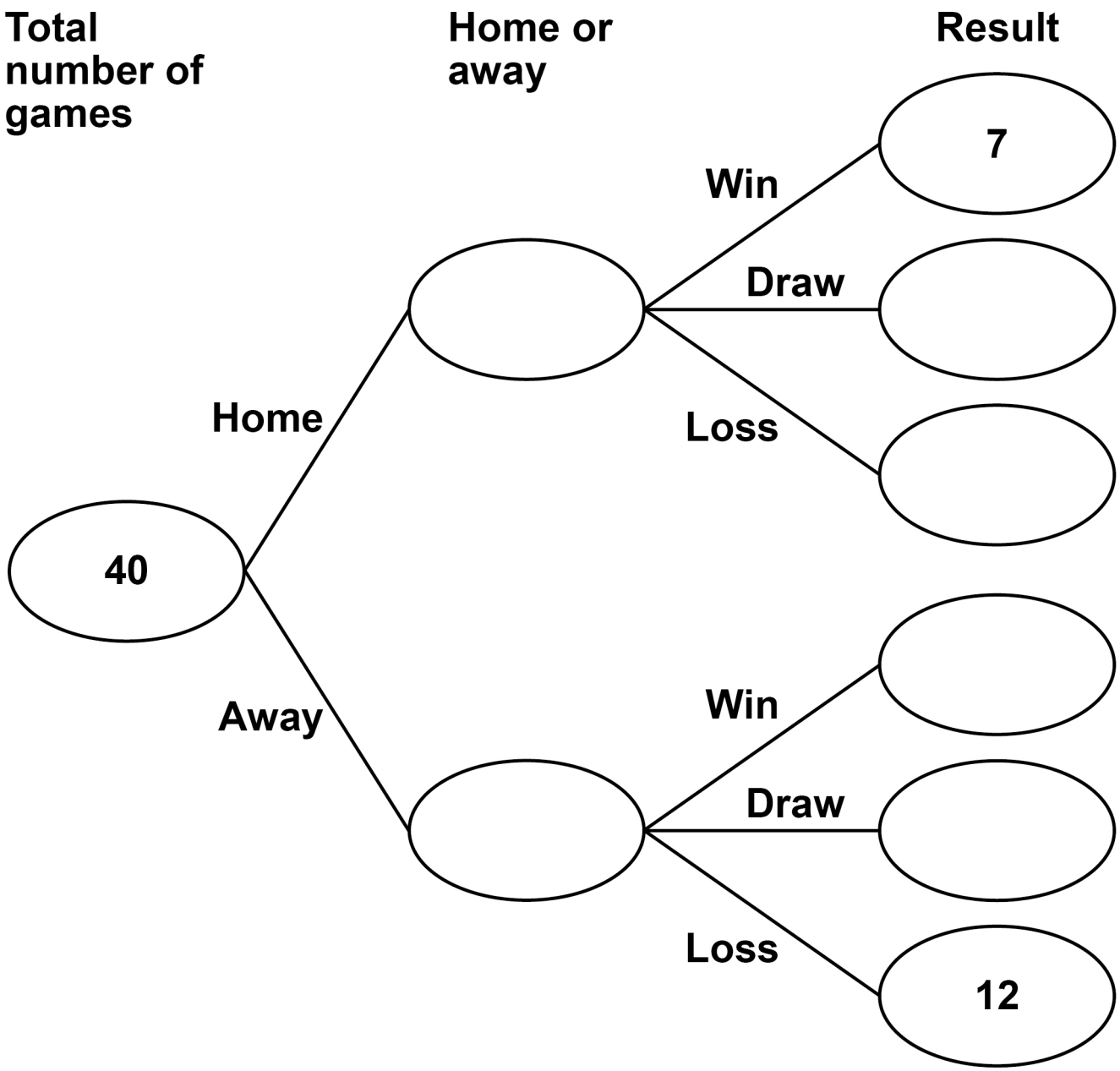
Half were home games and half were away games.

Each game was a win, a draw or a loss.

Of the HOME games, $\frac{2}{5}$ were losses.

Of the AWAY games, $\frac{1}{10}$ were wins.

12 (a) On the opposite page, complete the frequency tree. [4 marks]


Total number of games
Home or away
Result
40
Home
Away
Win
Draw
Loss
Win
Draw
Loss
7
12

[Turn over]

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12 (b) **The team gets**

6 points for a win

3 points for a draw

0 points for a loss.

Work out the TOTAL number of points that the team got. [2 marks]

Answer _____

13 **Factorise fully** $50x + 100$ **[2 marks]**

Answer _____

8

14 **Some buttons are red or blue in the ratio red : blue = 3 : 5**

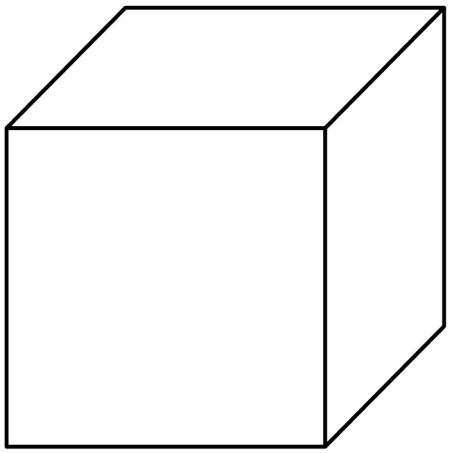
What fraction of the buttons are red?

Circle your answer. [1 mark]

$\frac{2}{5}$ $\frac{3}{5}$ $\frac{3}{8}$ $\frac{5}{8}$

[Turn over]

15 **Which of these is a correct statement about a cube?**



Tick ONE box. [1 mark]

☐ **It has 12 edges.**

☐ **It has 12 faces.**

☐ **It has 12 planes.**

☐ **It has 12 vertices.**

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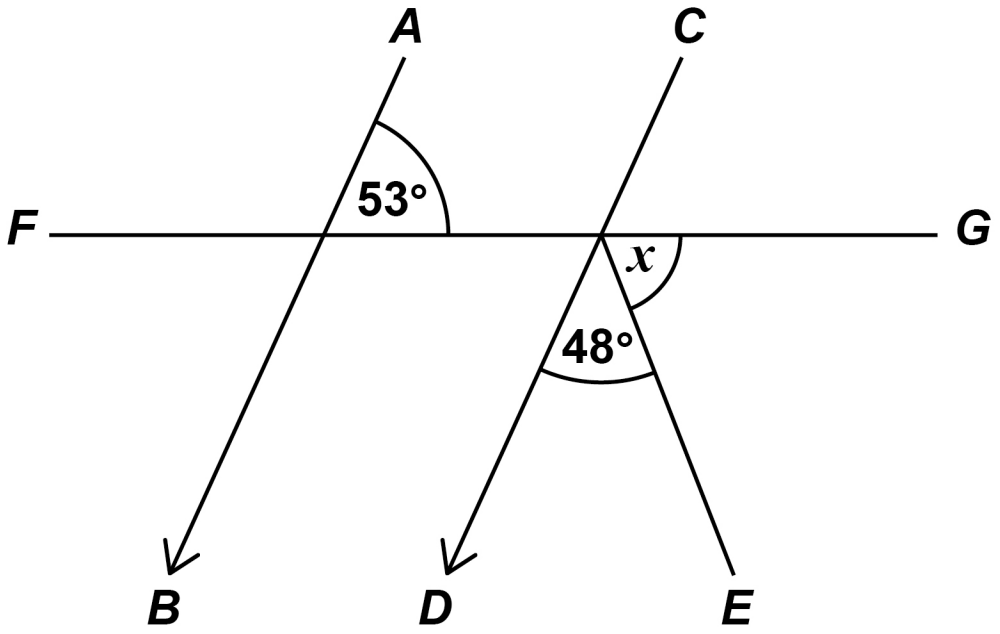
[Turn over]

16 ***AB*** **is parallel to** ***CD*****.**

FG **is a straight line.**

The diagram is not drawn accurately.



Work out the size of angle x**.** **[3 marks]**

Answer _____ **degrees**

5

17 **Harry and his sister Jess have some money in the ratio Harry : Jess = 1 : 4**

Harry has £7.35

They pay £16.99 for a present for a friend.

Harry uses $\frac{1}{3}$ of his money.

Jess pays the rest.

How much money does Jess have left?
[4 marks]

Answer £ _____

[Turn over]

18 **Solve** $10x - 3 = 21$ **[2 marks]**

$x =$ _____

19 **Work out which of these fractions is closer in value to 0.5**

$\frac{5}{16}$ $\frac{17}{25}$

You MUST show your working. [2 marks]

Answer _____

[Turn over]

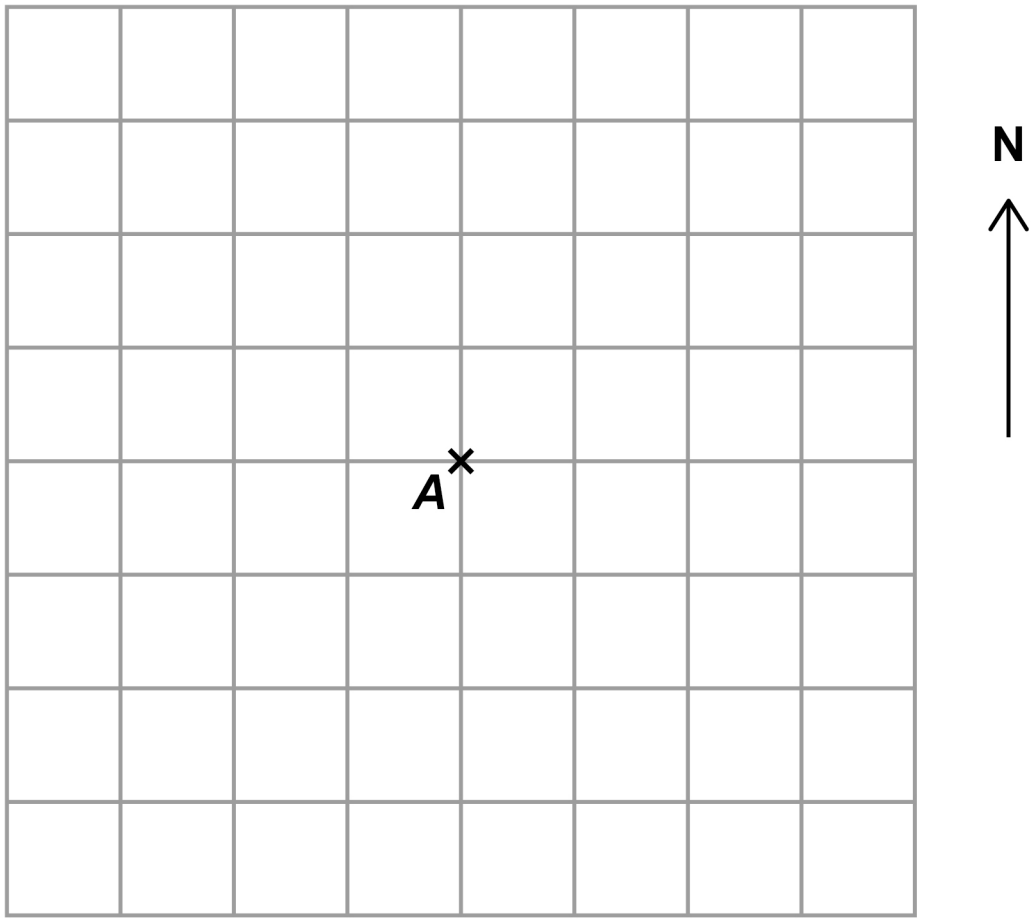
8

20 (a) **Point *B* is 400 metres north east of point *A*.**

Mark point *B* on the grid.

Each square on the grid represents 1 centimetre.

Use a scale of 1 centimetre represents 100 metres. [2 marks]



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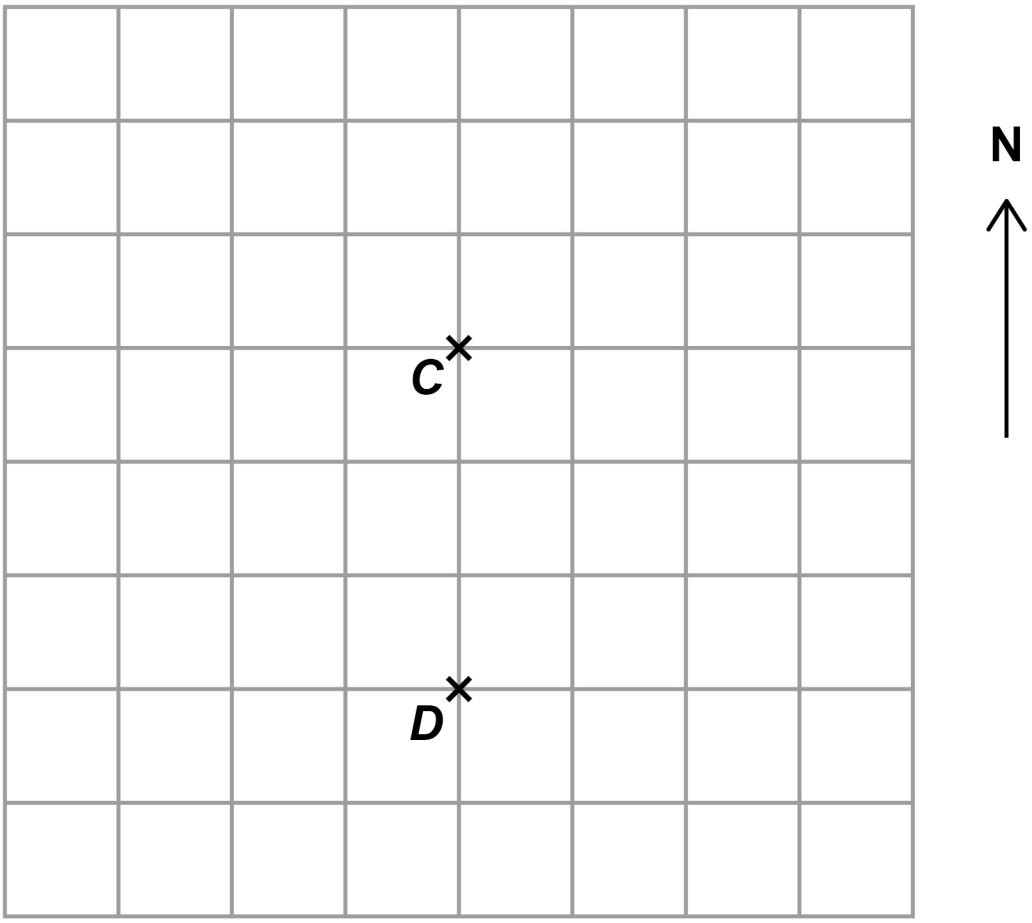
[Turn over]

Points *C* and *D* are shown on a different grid.

Each square on the grid represents 1 centimetre.

SCALE: 1 : 1000



20 (b) Work out the bearing of *D* from *C*. [1 mark]

Answer _____ **°**

20 (c) **Work out the actual distance, in metres, of *D* from *C*.**

Use the scale 1 : 1000 [1 mark]

Answer _____ **metres**

[Turn over]

4

21 **Lynn works as a bus driver.**

She is paid £10.80 per hour for the first 38 hours she works each week.

She is paid 25% MORE per hour for each extra hour she works.

One week, Lynn was paid £491.40

In total, how many hours did she work that week?

You MUST show your working. [5 marks]

Answer _____ **hours**

[Turn over]

22 The square root of x is 4

Circle the value of x^2 [1 mark]

256 2 16 8

23 Here is a rule for a sequence.

After the first two terms, each term is the sum of the previous two terms.

The first five terms are

p 23 q 57 r

Work out the values of p, q and r. [2 marks]

p = _____

q = _____

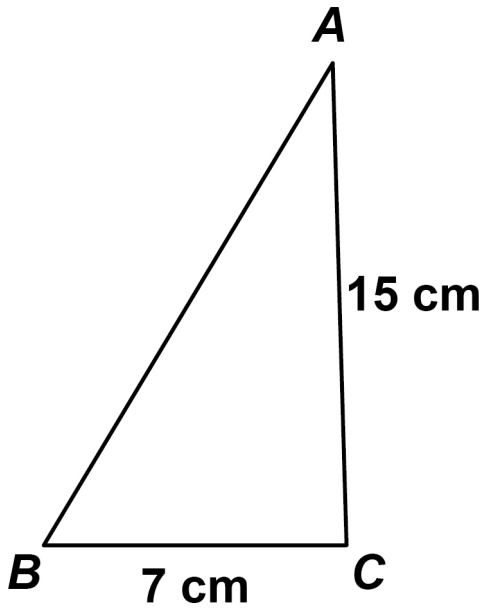
r = _____

[Turn over]

8

24 Here is triangle ABC.

The diagram is not drawn accurately.



24(a) Assume that angle $ACB = 90°$

Work out the length AB. [3 marks]

Answer _____ cm

24 (b) The actual length *AB* is greater than the answer to part (a).

What does this mean about angle *ACB*?

Tick ONE box. [1 mark]

☐ It is 90°

☐ It is less than 90°

☐ It is more than 90°

☐ It could be any of the above.

25 Rearrange $g = 3h - 1$ to make h the subject.
[2 marks]

Answer _____

6

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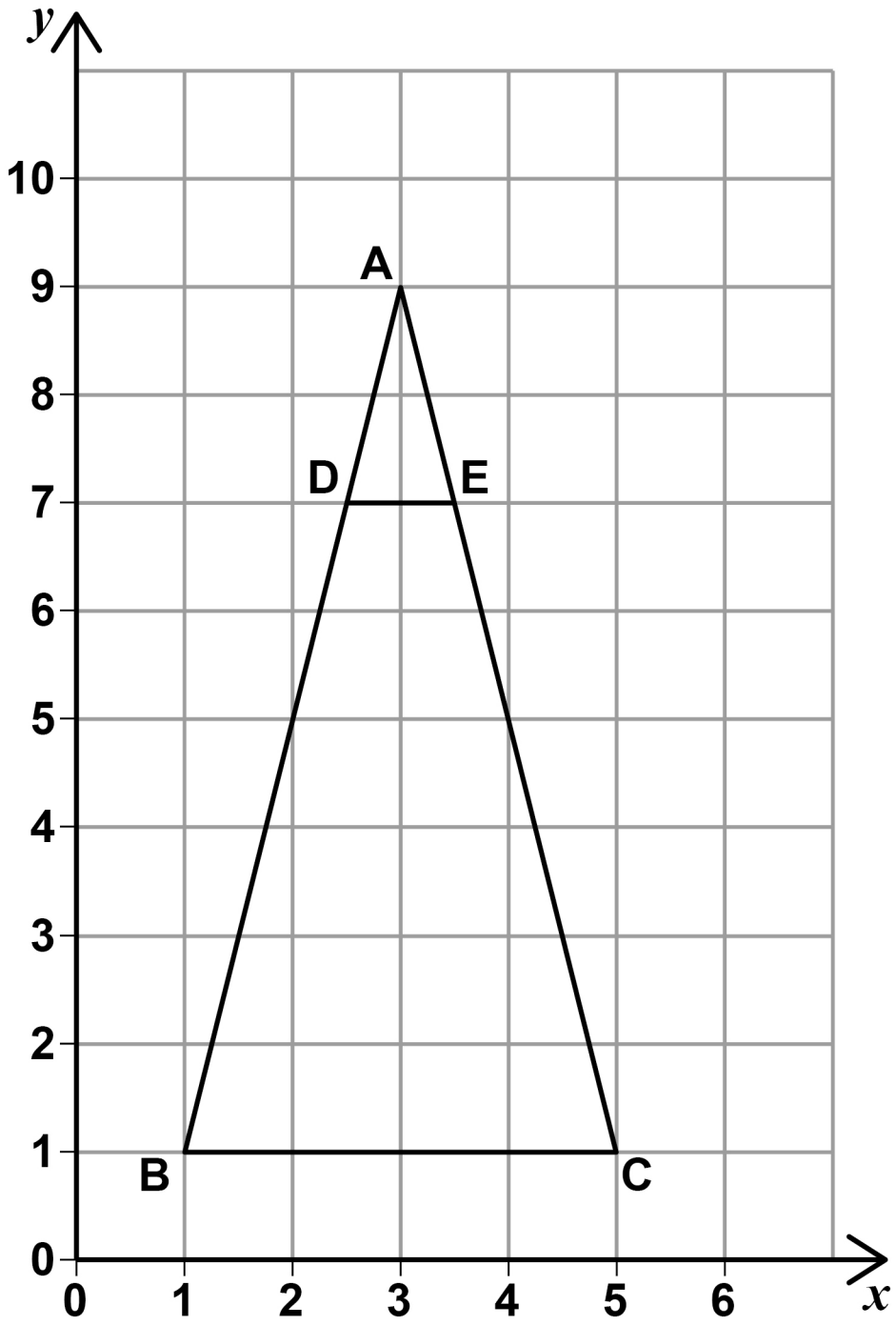
[Turn over]

26



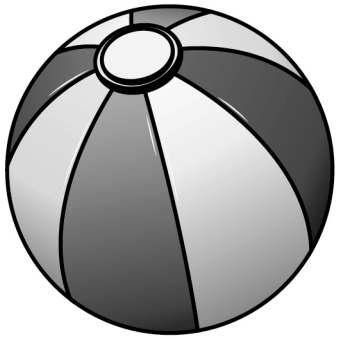
Describe fully the SINGLE transformation that maps triangle *ABC* to triangle *ADE*. [3 marks]

[Turn over]

27 **A ball contains 5000 cm^3 of air.**

More air is pumped into the ball at a rate of 160 cm^3 per second.

The ball is full of air when it becomes a sphere with radius 15 cm



Volume of a sphere = $\frac{4}{3}\pi r^3$ where r is the radius

Does it take LESS THAN 1 minute to fill the ball?

You MUST show your working. [4 marks]

7

28 p **is a positive number.**

n **is a negative number.**

For each statement, tick the correct box. [4 marks]

	Always true	Sometimes true	Never true
$p + n$ is positive	☐	☐	☐
$p - n$ is positive	☐	☐	☐
$p^2 + n^2$ is positive	☐	☐	☐
$p^3 \div n^3$ is positive	☐	☐	☐

[Turn over]

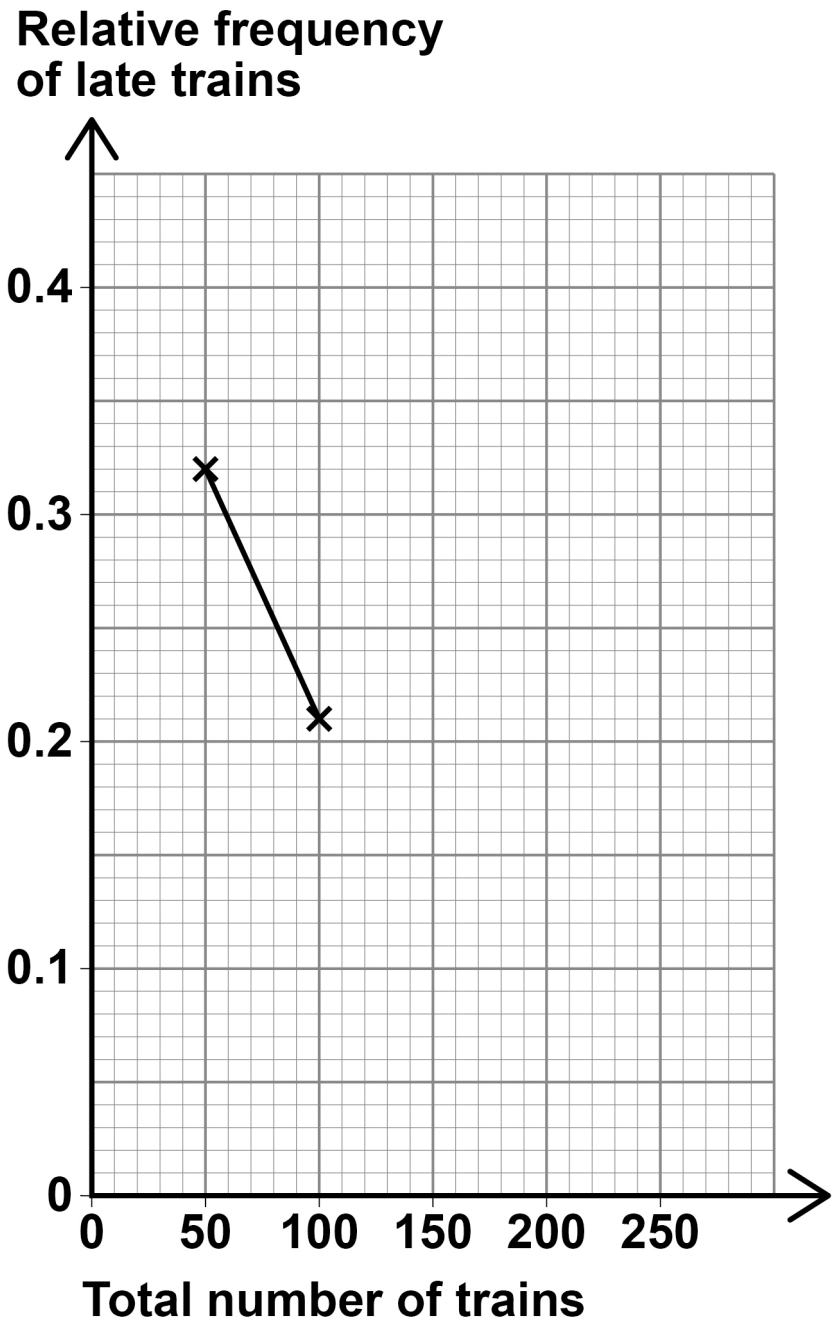
29 **250 trains arrived at a station.**

The number of trains that were late was recorded after every 50 trains.

The table shows some information about the results.

Total number of trains	50	100	150	200	250
Total number of late trains	16	21	36	38	55
Relative frequency of late trains	0.32	0.21			

29 (a) **On the opposite page, complete the relative frequency graph. [3 marks]**



29 (b) **Write down the best estimate of the probability that a train arriving at the station is late.**
[1 mark]

Answer _____

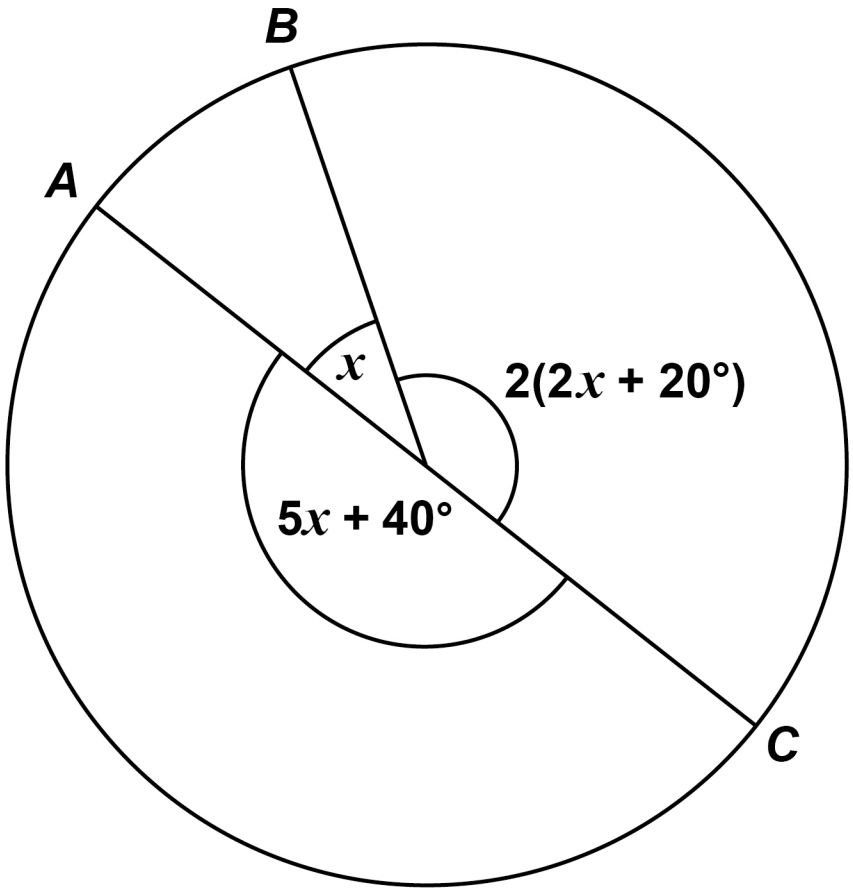
[Turn over]

8

30 *A*, *B* and *C* are three points on a circle.

The radii from *A*, *B* and *C* are shown.

The diagram is not drawn accurately.



Is *AC* a diameter of the circle?

You MUST show your working. [3 marks]

31 **A straight line**

has gradient 6

and

passes through the point (3, 19)

Work out the equation of the line.

Give your answer in the form $y = mx + c$
[3 marks]

Answer _____

END OF QUESTIONS

6

Additional page, if required.
Write the question numbers in the left-hand margin.

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Write the question numbers in the left-hand margin.

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For Examiner's Use	
Pages	Mark
4–5	
6–9	
10–13	
14–18	
19–23	
24–27	
28–31	
32–35	
36–38	
40–43	
44–47	
48–51	
TOTAL	