

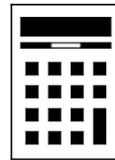
AQA **Surname** _____**Other Names** _____**Centre Number** _____**Candidate Number** _____**Candidate Signature** _____**GCSE****MATHEMATICS****F****Foundation Tier Paper 3 Calculator****8300/3F****Tuesday 12 June 2018 Morning****Time allowed: 1 hour 30 minutes**

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.**
- **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 value of the digit 7 in 9.17
[1 mark]**

$$\frac{1}{70}$$

$$\frac{1}{7}$$

$$\frac{7}{10}$$

$$\frac{7}{100}$$

2 Solve $3x = 2$

Circle your answer. [1 mark]

$$x = -1$$

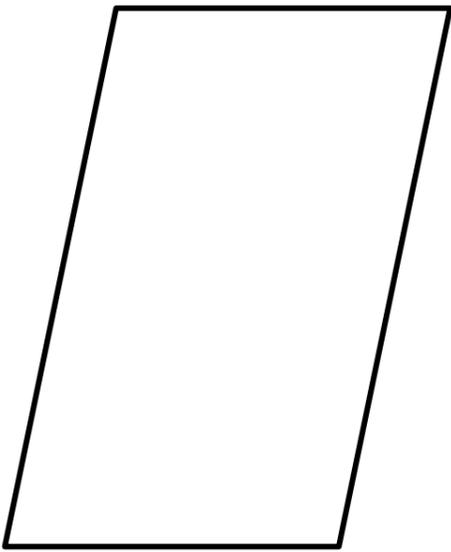
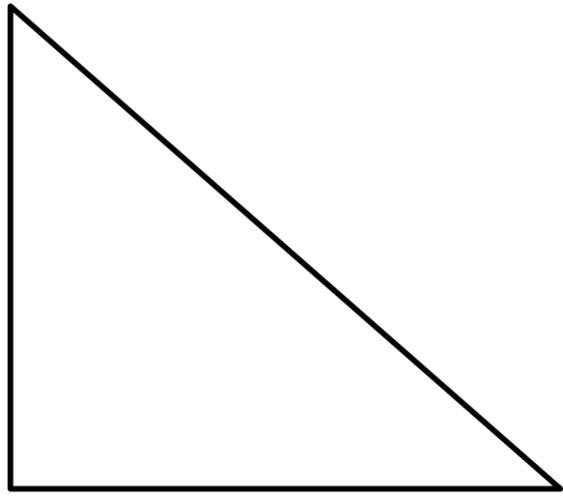
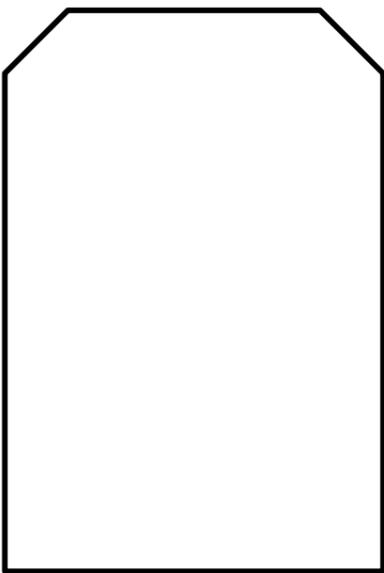
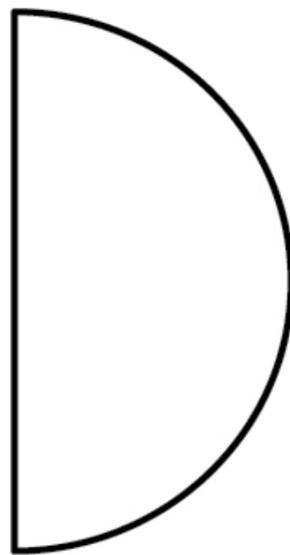
$$x = \frac{2}{3}$$

$$x = \frac{3}{2}$$

$$x = 6$$



- 3 Which of these shapes has NO lines of symmetry?
Circle the correct letter. [1 mark]**

A**B****C****D**

[Turn over]



4 Circle the shortest length. [1 mark]

1200 cm

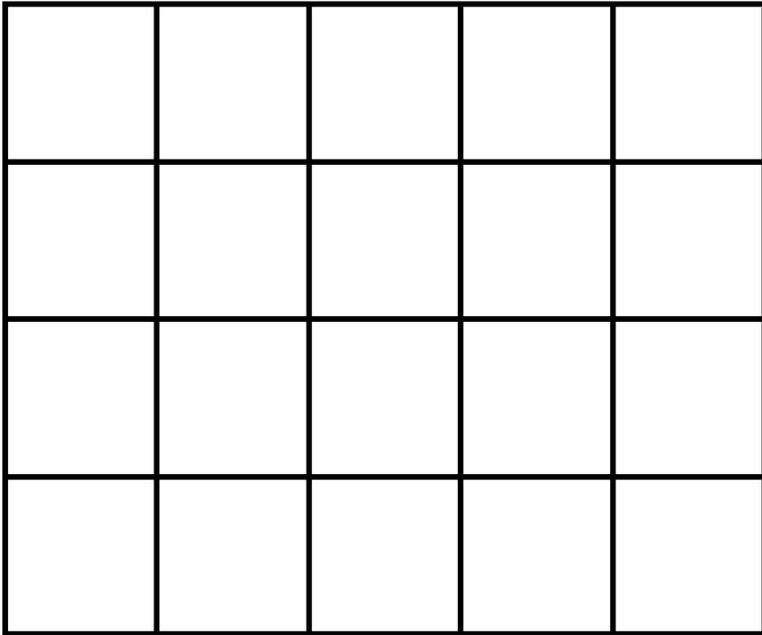
0.13 km

110 m

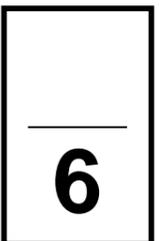
140 000 mm

5 (a) Shade $\frac{2}{5}$ of this grid. [1 mark]

5 (b) Shade 10% of this grid. [1 mark]



[Turn over]



6 Saj wants to go to all 19 home games at a football club.

For each game, a ticket costs £28

A season ticket costs £379

and

gives entry to all 19 home games.

In total, how much does Saj save by buying a season ticket? [3 marks]

Answer £ _____

[Turn over]

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7 Link the algebra to the correct description.

One has been done for you. [3 marks]

$$P = 3x + 4y$$

Identity

$$3x + 6 \equiv 3(x + 2)$$

Equation

$$3x + 2 = 14$$

Formula

$$3x + 2$$

Inequality

$$3x + 2 < 14$$

Expression

[Turn over]

6



8 Jim has six banknotes.

The value of each note is £5 or £10 or £20

He CAN make £20 with three notes.

He CAN make £55 with four notes.

He CANNOT make £25 with three notes.

He CANNOT make £25 with four notes.

List the six notes. [2 marks]

£ _____

£ _____

£ _____

£ _____

£ _____

£ _____

[Turn over]

9 A music app has a shuffle play function.

This means that songs are played in a random order WITHOUT REPEAT.

9 (a) Ruth puts 10 songs on shuffle play.

One of them is her favourite song.

Write down the probability that her favourite song plays first. [1 mark]

Answer _____

9 (b) Ted puts songs A, B and C on shuffle play.

List all the possible orders of songs A, B and C.

**One has been done for you.
[2 marks]**

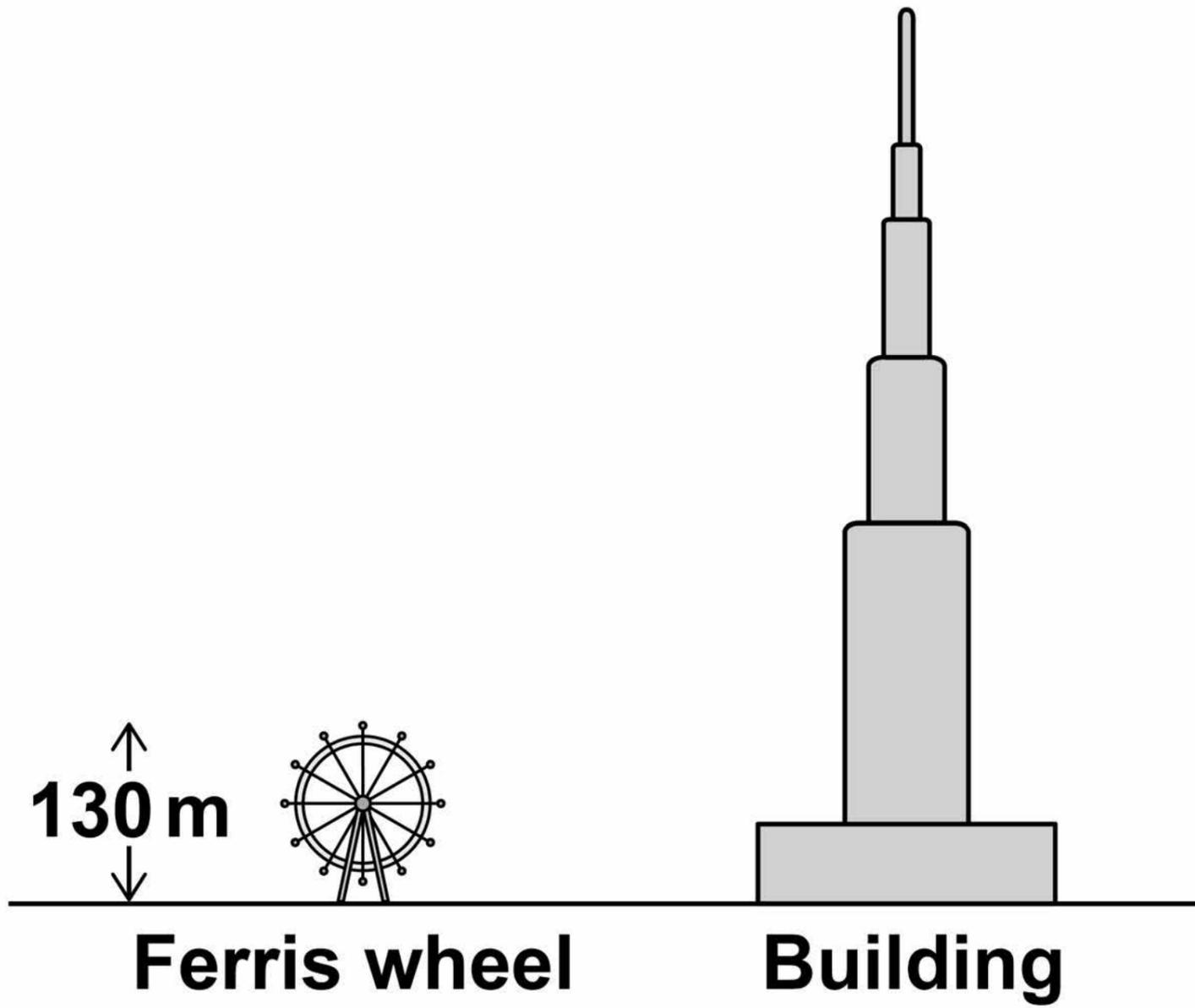
A B C

[Turn over]

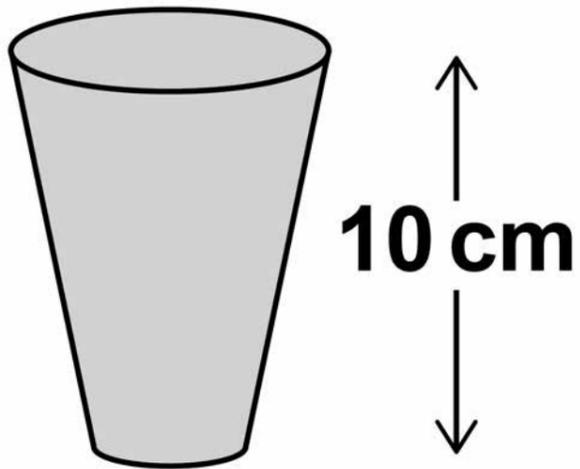
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5



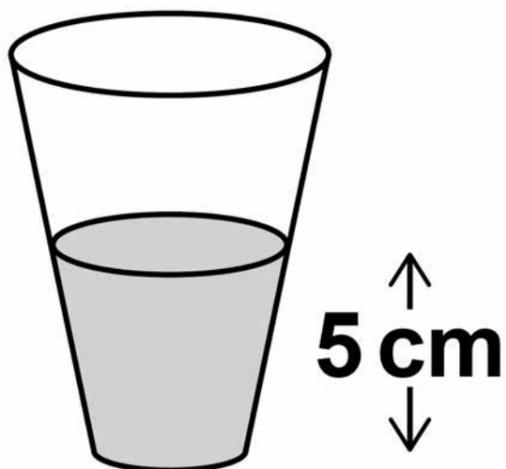
10 Here is a scale drawing.



11 Jo has a full cup of coffee.



She drinks some of it.



She says,

**“Half of the coffee is still in the cup,
because 5 cm is half of 10 cm”**

Is she correct?

Tick a box.

Yes

No

**Give a reason for your answer.
[1 mark]**

[Turn over]

4

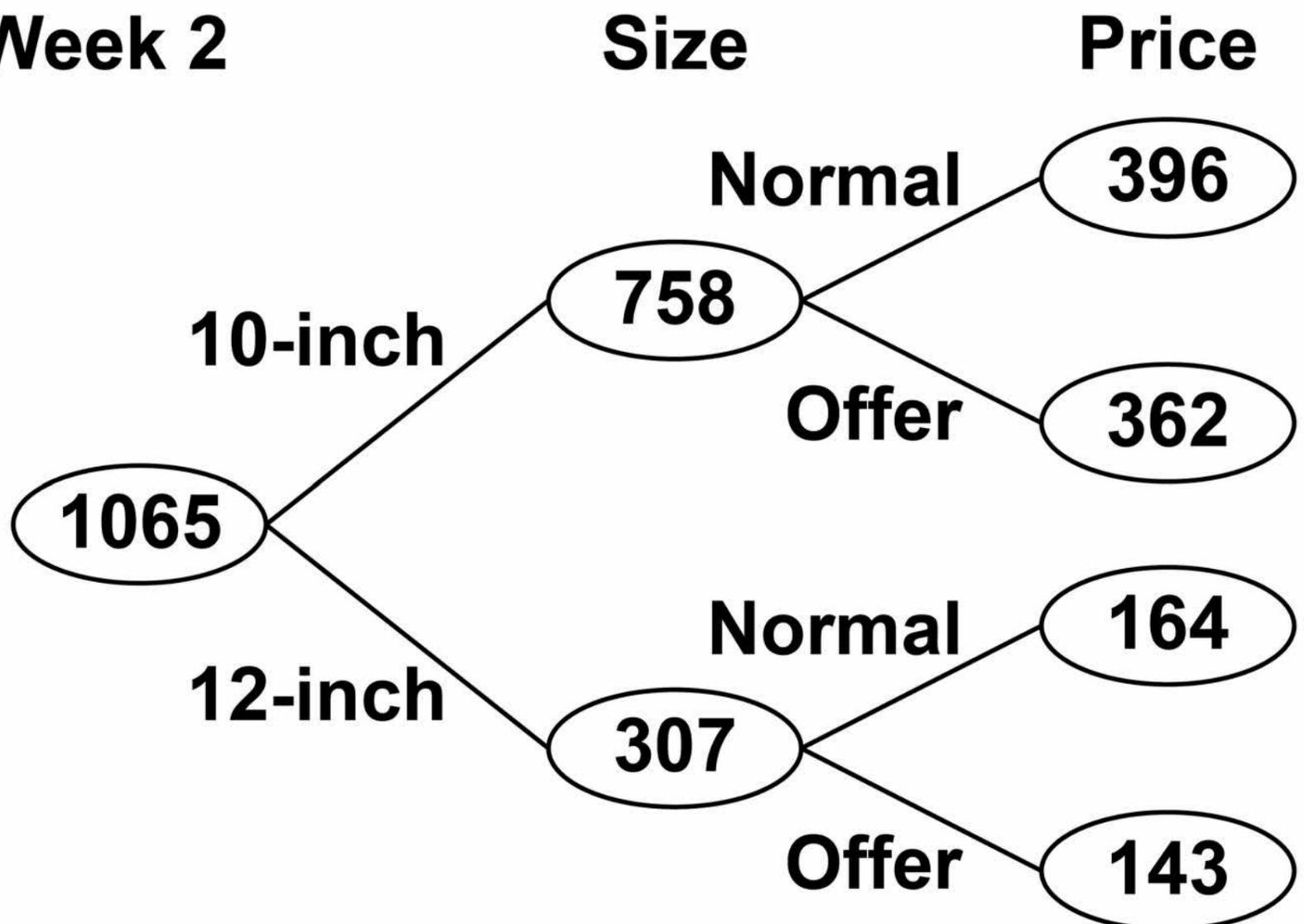
12 A takeaway sells 10-inch pizzas and 12-inch pizzas.

Here is some information about the numbers sold in two weeks.

Week 1

10-inch	512
12-inch	231
Total	743

Week 2



12 (a) In each week a proportion of the pizzas sold were 10-inch.

In which week was this proportion greater?

Show working to support your answer. [2 marks]

Answer _____

[Turn over]

12 (b) The table shows the profit or loss the takeaway makes on each pizza.

	Normal price	Offer price
10-inch	£3.74 profit	51p loss
12-inch	£5.29 profit	4p loss

In week 1 the total profit was £1895.55

At the end of week 1 the takeaway spent £175 on adverts.

Was the INCREASE in profit in week 2 more than the cost of the adverts?

**You MUST show your working.
[4 marks]**



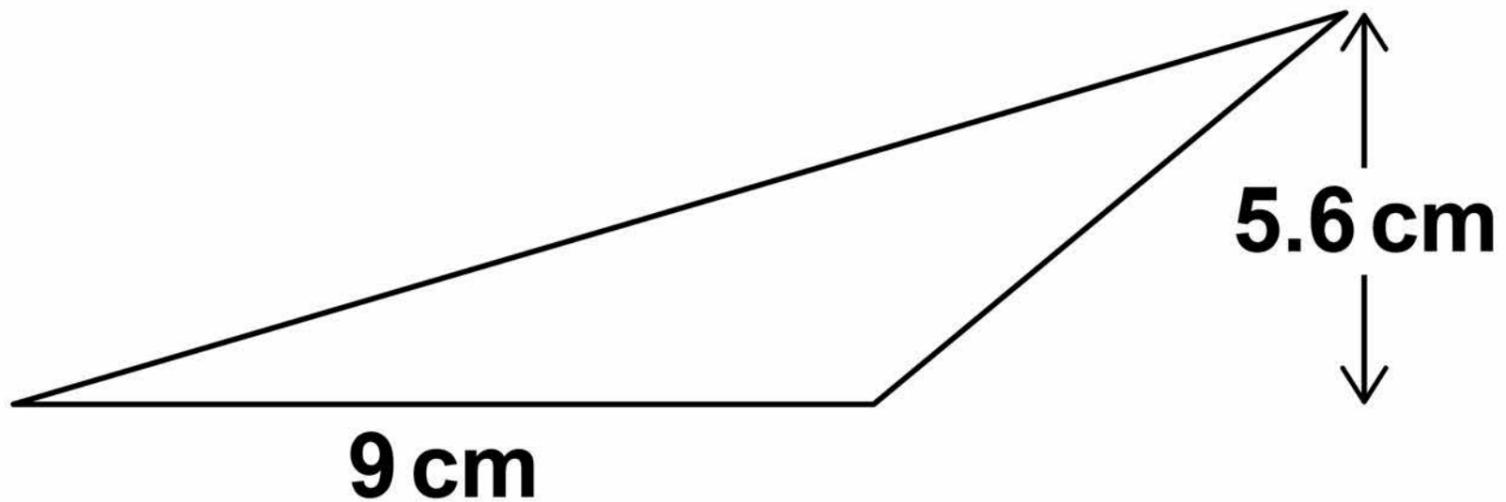
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[Turn over]



- 14 A triangle has base 9 cm and perpendicular height 5.6 cm

The diagram is not drawn accurately.



Work out the area of the triangle.
[2 marks]

Answer _____ cm^2

[Turn over]

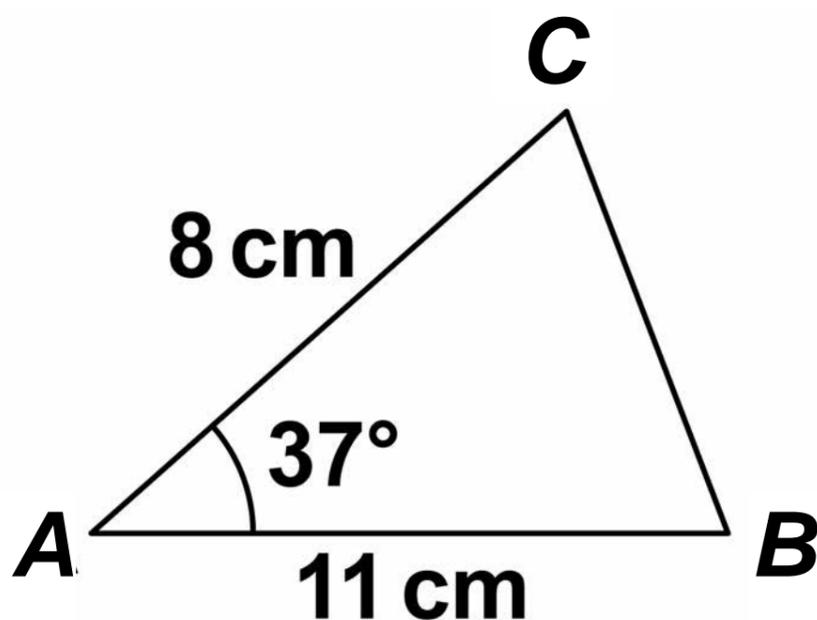


Answer _____

[Turn over]

8

- 16 A sketch of triangle ABC is shown.
The diagram is not drawn accurately.



In the space below, complete an accurate drawing of triangle ABC .
[2 marks]

A _____ B



17 Simplify $7x - (3x - 2x)$

Circle your answer. [1 mark]

$7x - 1$

$2x$

$6x$

$8x$

18 A competition
took place in 1983
takes place every six years.

Circle the year in which it will also
take place. [1 mark]

2083

2036

2049

2023

[Turn over]

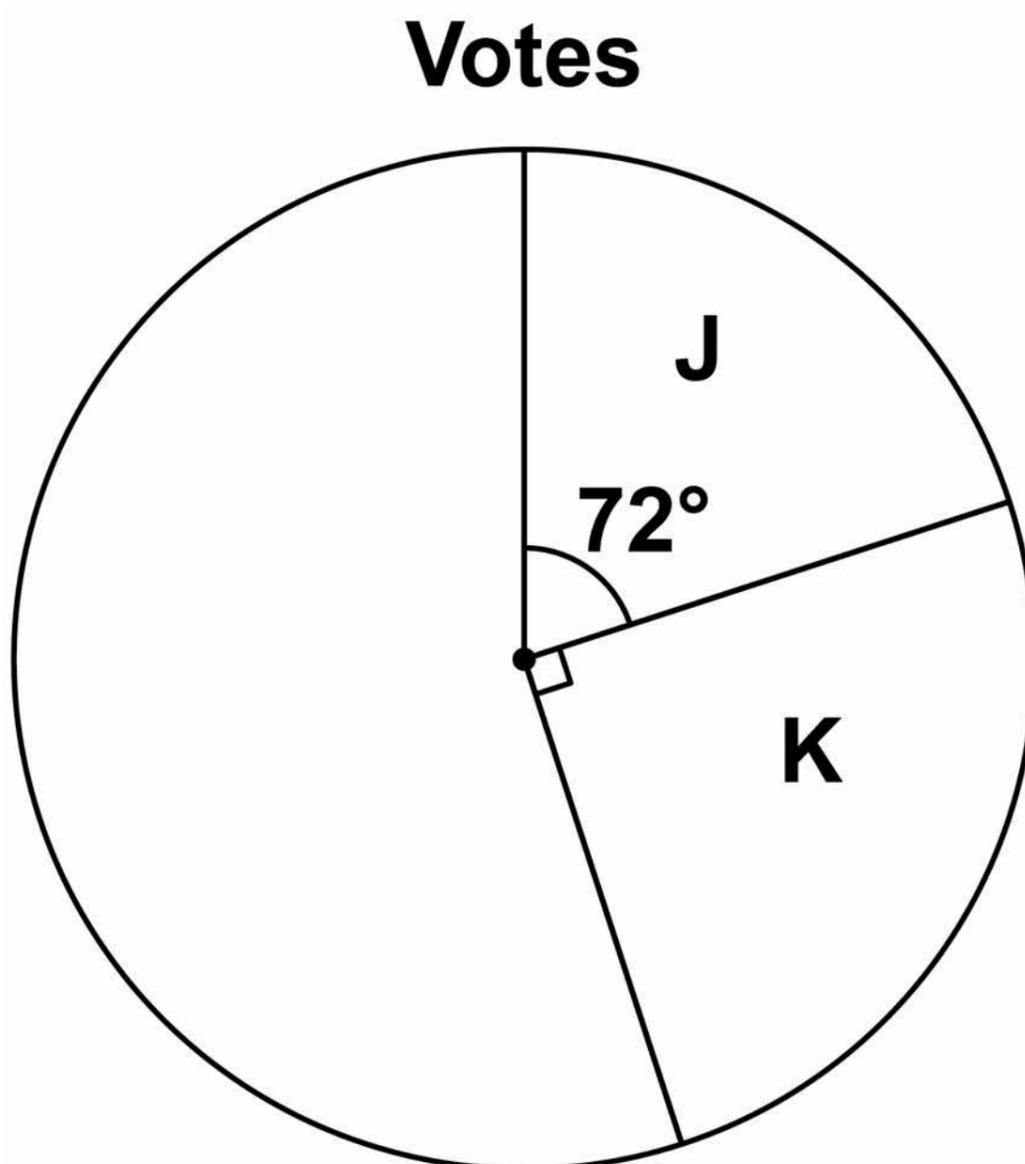
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19 In an election there were four candidates, J, K, L and M.

Fran is drawing a pie chart to show the results.

The sectors for J and K have been drawn.



19 (a) Twice as many people voted for L as voted for M.

Complete the pie chart. [3 marks]

[Turn over]

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**19 (b) Altogether, 16 200 people voted.
How many voted for J? [2 marks]**

Answer _____

[Turn over]

20 The probability that A is the outcome of an experiment is 0.2

Circle the probability that A is NOT the outcome. [1 mark]

0

0.2

0.5

0.8

21 Rearrange $e = 2f$ to make f the subject.

Circle your answer. [1 mark]

$$f = 2e$$

$$f = \frac{2}{e}$$

$$f = e - 2$$

$$f = \frac{e}{2}$$

7



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[Turn over]



22 Here is a rule for a sequence.

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

22 (a) Here is a sequence that follows this rule.

2 10 6 _____ _____ _____

**Show that the 6th term is the first one that is NOT a whole number.
[3 marks]**

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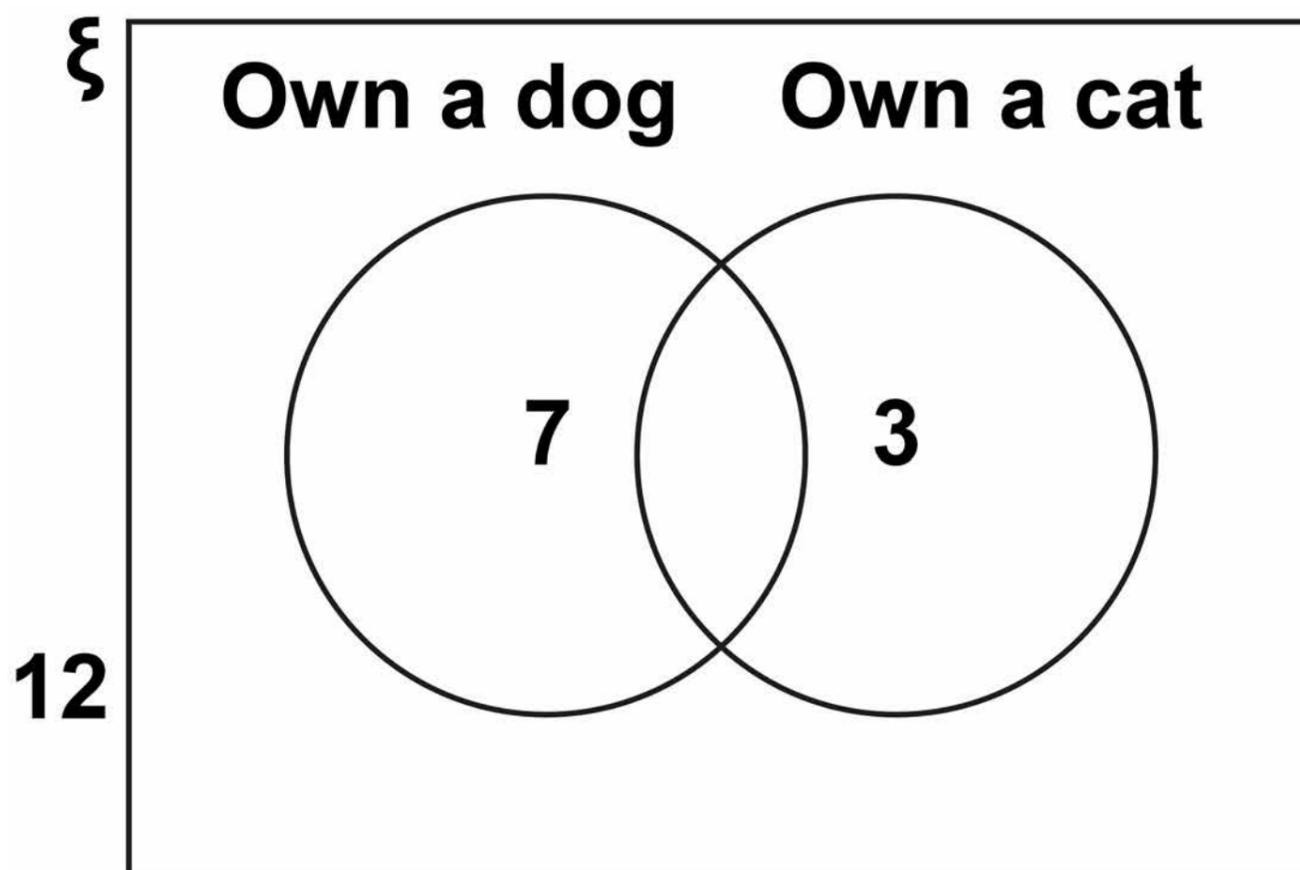
23 In a group of 20 people

7 own a dog

3 own a cat

12 do not own a dog or a cat.

Aidan shows this information on a Venn diagram.



Make TWO criticisms of his Venn diagram. [2 marks]

Criticism 1 _____

Criticism 2 _____

[Turn over]

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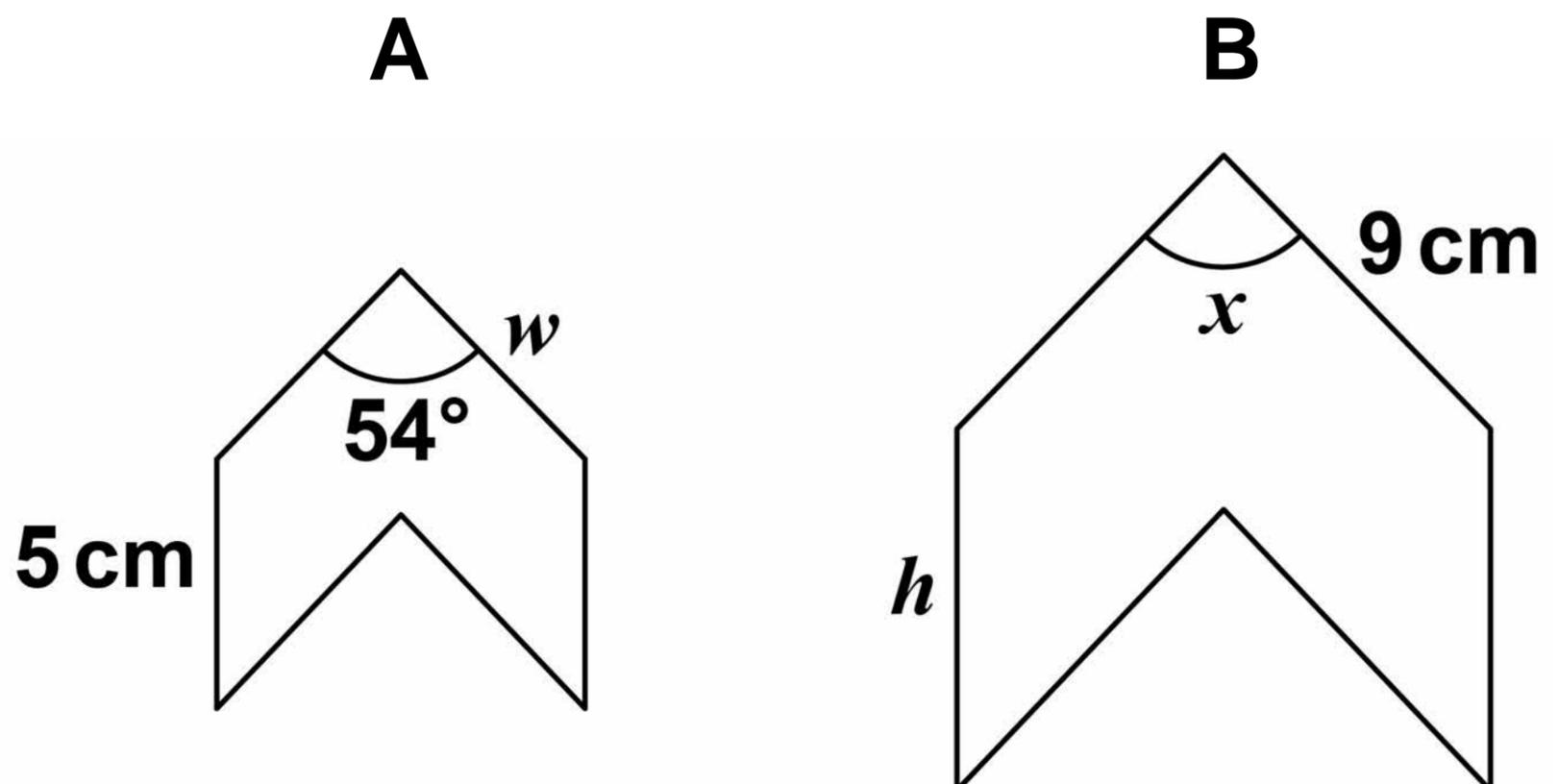
[Turn over]



25 A and B are similar shapes.

B is an enlargement of A with scale factor 1.5

The diagram is not drawn accurately.



**Work out the values of x , h and w .
[3 marks]**

$x =$ _____ **degrees**

$h =$ _____ **cm**

$w =$ _____ **cm**

[Turn over]



26 Investment A

**Save £150 per month for 2 years.
2.5% interest is added to the total
amount saved.**

Investment B

Invest £3500

**Compound interest is added at
3% per year.**

**After 2 years, how much MORE is
investment B worth than
investment A? [4 marks]**

Answer £

7

[Turn over]



28 The cost of a ticket increases by 10% to £19.25

Work out the original cost. [3 marks]

Answer £ _____

8

30

$$\mathbf{a} = \begin{pmatrix} 6 \\ -10 \end{pmatrix} \quad \mathbf{b} = \begin{pmatrix} -1 \\ 2 \end{pmatrix}$$

$$\mathbf{c} = \begin{pmatrix} -4 \\ 7 \end{pmatrix}$$

30 (a) Work out $\mathbf{a} + \mathbf{b} + \mathbf{c}$ [2 marks]

Answer $\begin{pmatrix} \\ \end{pmatrix}$

**30 (b) Show that $a + 2c = kb$,
where k is an integer. [2 marks]**

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7

END OF QUESTIONS

There are no questions printed on this page

For Examiner's Use	
Pages	Mark
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50–52	
53–55	
TOTAL	

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