A

AQA

Surname _____

Other Names _____

Centre Number _____

Candidate Number _____

Candidate Signature _____

GCSE

MATHEMATICS

F

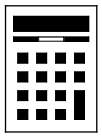
Foundation Tier Paper 3 Calculator

8300/3F

Tuesday 12 June 2018 Morning

Time allowed: 1 hour 30 minutes

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



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

[Turn over]

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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 $3x = 2$

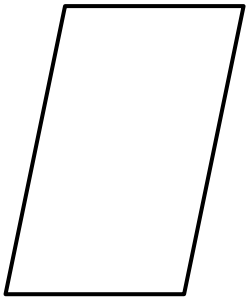
Circle your answer. [1 mark]

$x = -1$ $x = \frac{2}{3}$

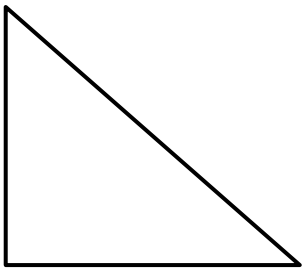
$x = \frac{3}{2}$ $x = 6$

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

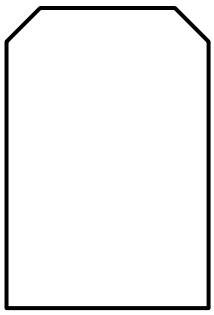
A



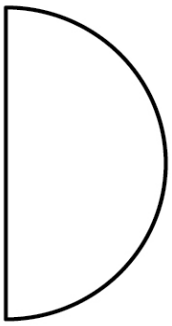
B



C



D



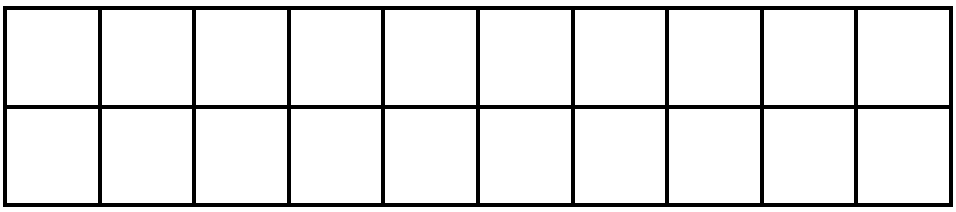
4 Circle the shortest length. [1 mark]

1200 cm 0.13 km 110 m 140 000 mm

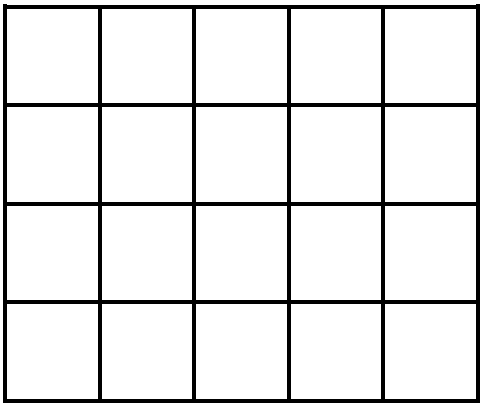
[Turn over]

BLANK PAGE

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



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



6

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.

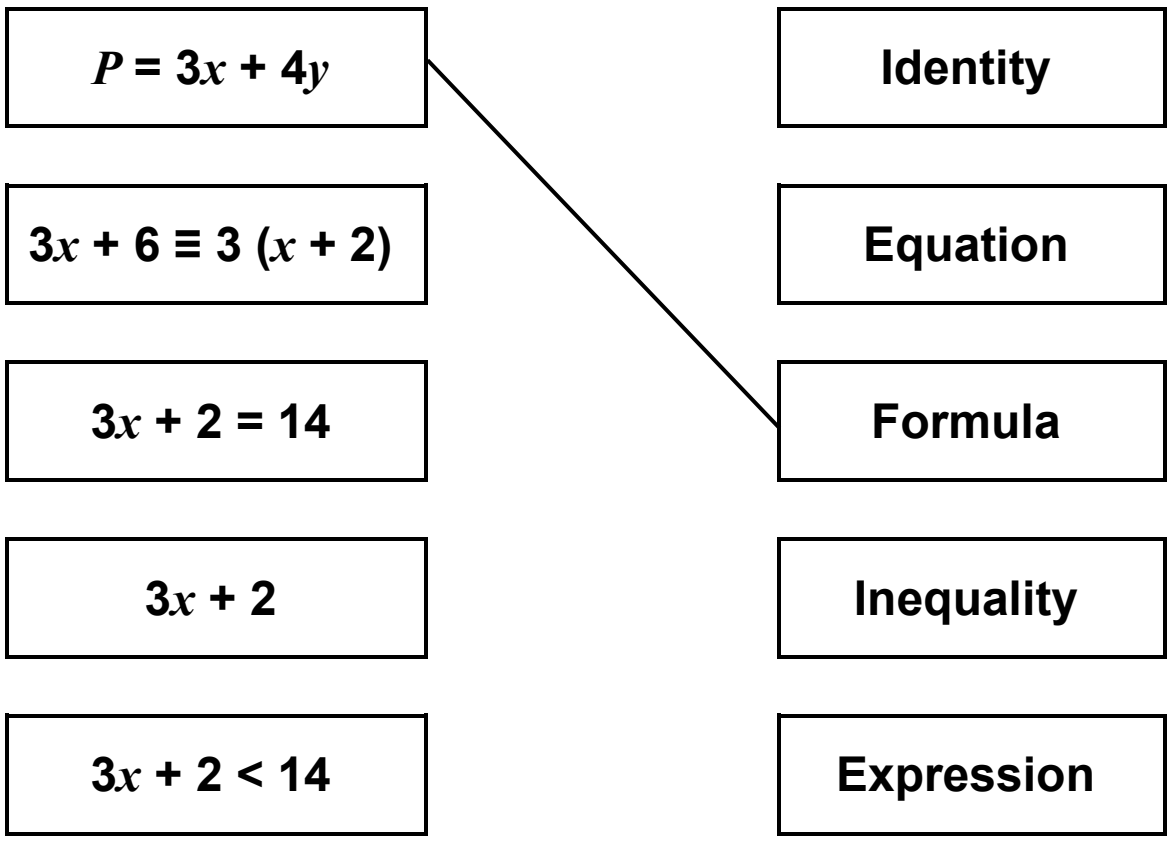
In total, how much does Saj save by buying a season ticket? [3 marks]

Answer £ _____

[Turn over]

7 Link the algebra to the correct description.

One has been done for you. [3 marks]



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.

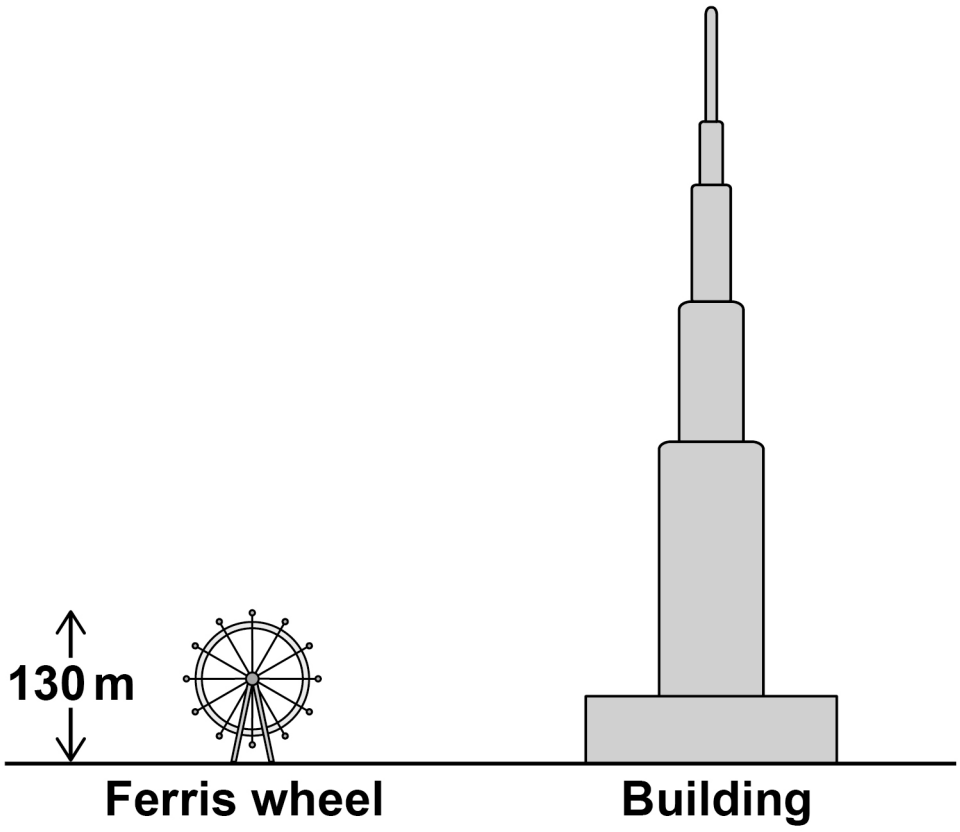
List all the possible orders of songs A, B and C.

One has been done for you. [2 marks]

A B C

5

10 Here is a scale drawing.



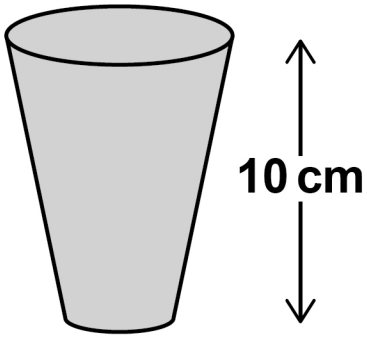
The Ferris wheel has a height of 130 m

Work out the height of the building. [3 marks]

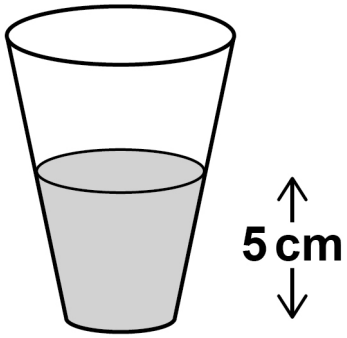
Answer _____ m

[Turn over]

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

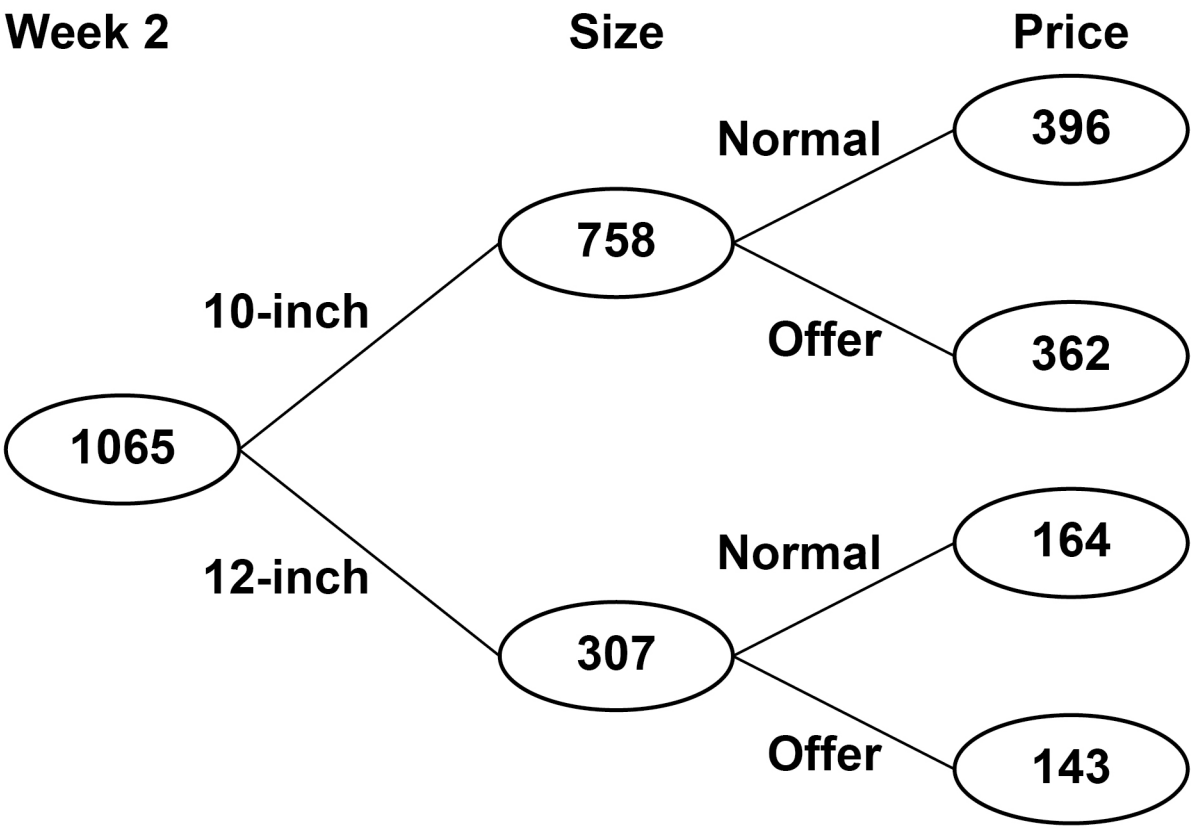
12 A takeaway sells 10-inch pizzas and 12-inch pizzas.

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]

Answer _____

6

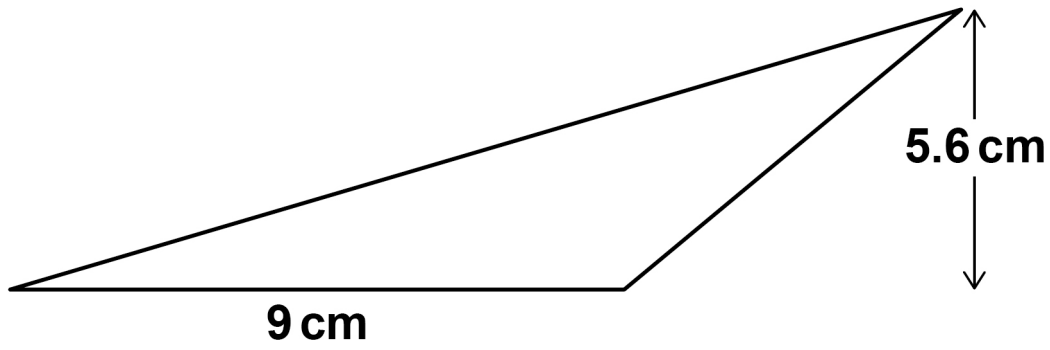
13 A car travels 3.5 miles in 5 minutes.

Work out the average speed in miles per hour.
[3 marks]

Answer _____ mph

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]

15 Four positive whole numbers add up to 36

One of the numbers is a multiple of 7

The other three numbers are equal.

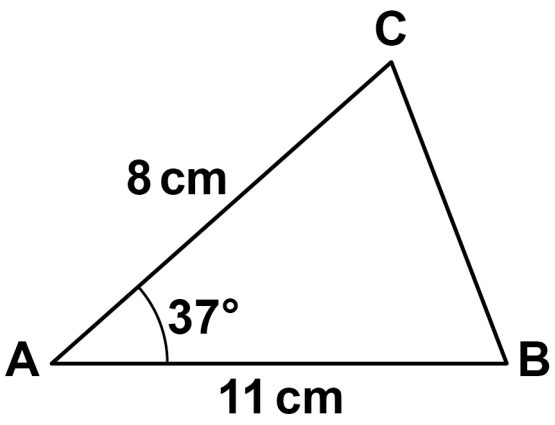
Work out the result when the four numbers are multiplied. [3 marks]

Answer _____

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]

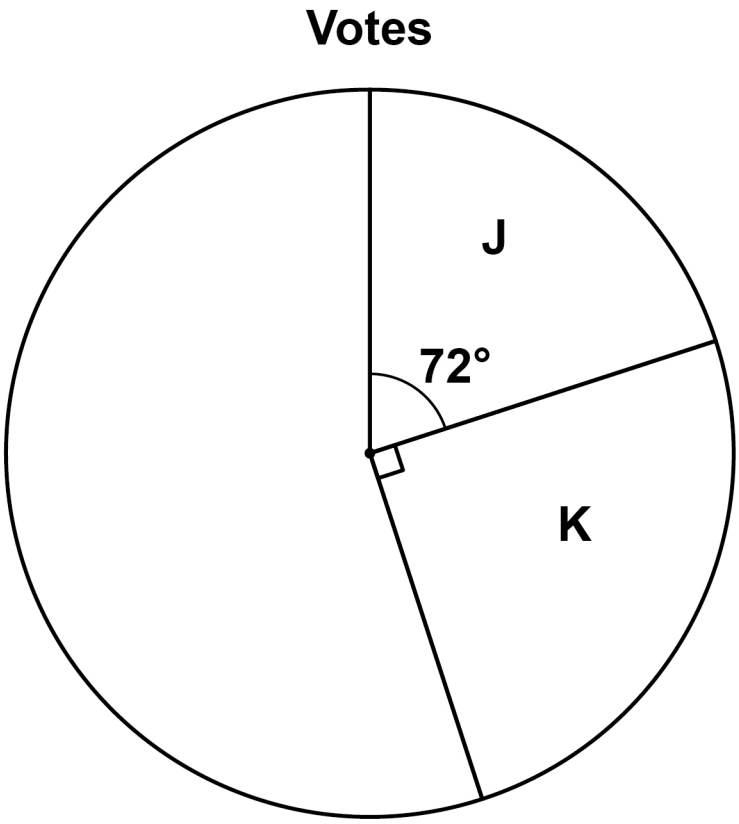
2083 2036 2049 2023

4

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]

19 (b) Altogether, 16 200 people voted.

How many voted for J? [2 marks]

Answer _____

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]

[Turn over]

BLANK PAGE

22 (b) A different sequence follows the same rule.

The 1st term is 4

The 3rd term is 9.5

4 ____ 9.5

Work out the 2nd term. [3 marks]

Answer _____

6

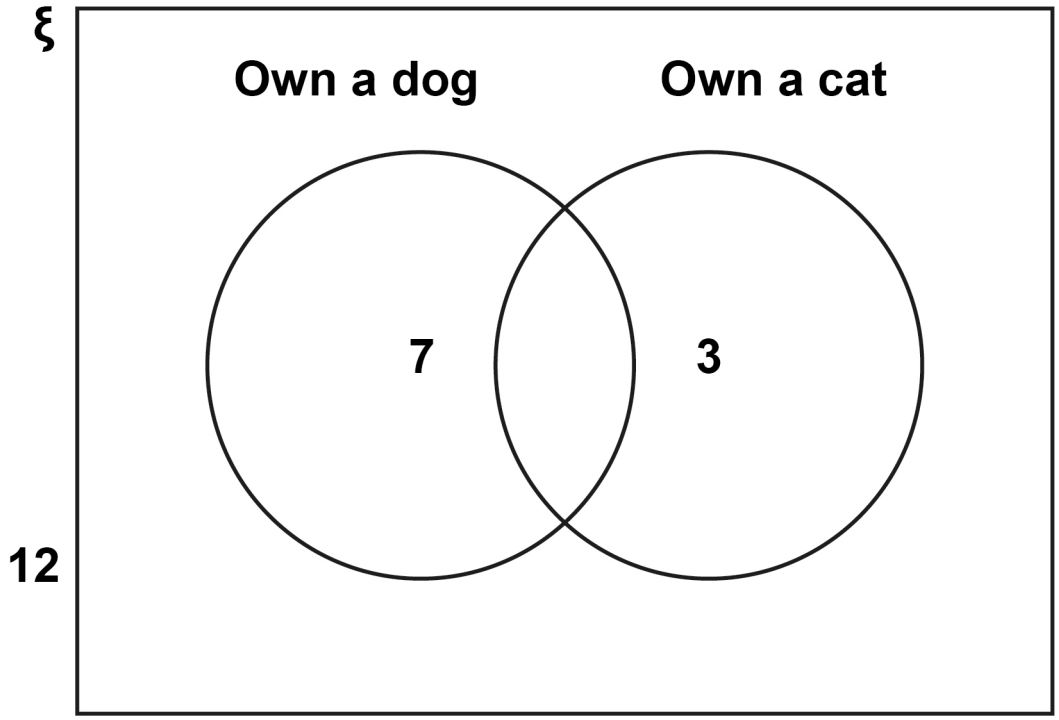
23 In a group of 20 people

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]

24 a is a common factor of 72 and 120

b is a common multiple of 6 and 9

Work out the highest possible value of $\frac{a}{b}$

[4 marks]

Answer _____

6

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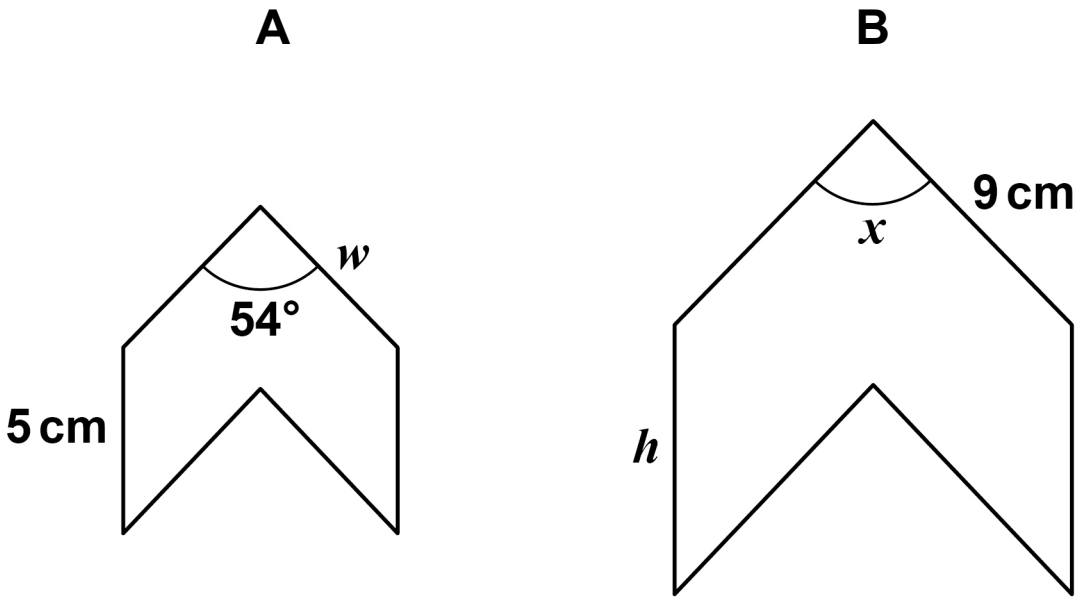
[Turn over]

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]

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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 £ _____

[Turn over]

7

27 (a) Show that the lines $y = 3x + 7$ and $2y - 6x = 8$ are parallel.

Do NOT use a graphical method. [3 marks]

27 (b) Is the point (–5, –6) above, below or on the line $y = 3x + 7$?

Tick ONE box.

☐ Above ☐ Below ☐ On the line

You MUST show your working.

Do NOT use a graphical method. [2 marks]

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

Work out the original cost. [3 marks]

Answer £ _____

8

29 The nth term of a sequence is $12n - 5$

Work out the numbers in the sequence that have two digits and are NOT prime. [3 marks]

Answer _____

[Turn over]

30 $a = \begin{pmatrix} 6 \\ -10 \end{pmatrix}$ $b = \begin{pmatrix} -1 \\ 2 \end{pmatrix}$ $c = \begin{pmatrix} -4 \\ 7 \end{pmatrix}$

30 (a) Work out $a + b + c$ [2 marks]

Answer ( )

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

7

END OF QUESTIONS

There are no questions printed on this page

For Examiner's Use	
Pages	Mark
4–7	
8–10	
11–13	
14–17	
18–21	
22–25	
26–27	
28–30	
32–35	
36–38	
40–43	
44–46	
47–49	
TOTAL	