



Please write clearly in block capitals.

Centre number

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Candidate number

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Surname _____

Forename(s) _____

Candidate signature _____

GCSE MATHEMATICS

F

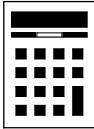
Foundation Tier Paper 3 Calculator

Tuesday 12 June 2018 Morning Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- a calculator
- mathematical instruments.



For Examiner's Use	
Pages	Mark
2–3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
18–19	
20–21	
22–23	
24–25	
26–27	
TOTAL	

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or 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 write
outside the
box

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]



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 £ _____



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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 for the next question

Turn over ►



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]

£

£

£

£

£

£



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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 for the next question

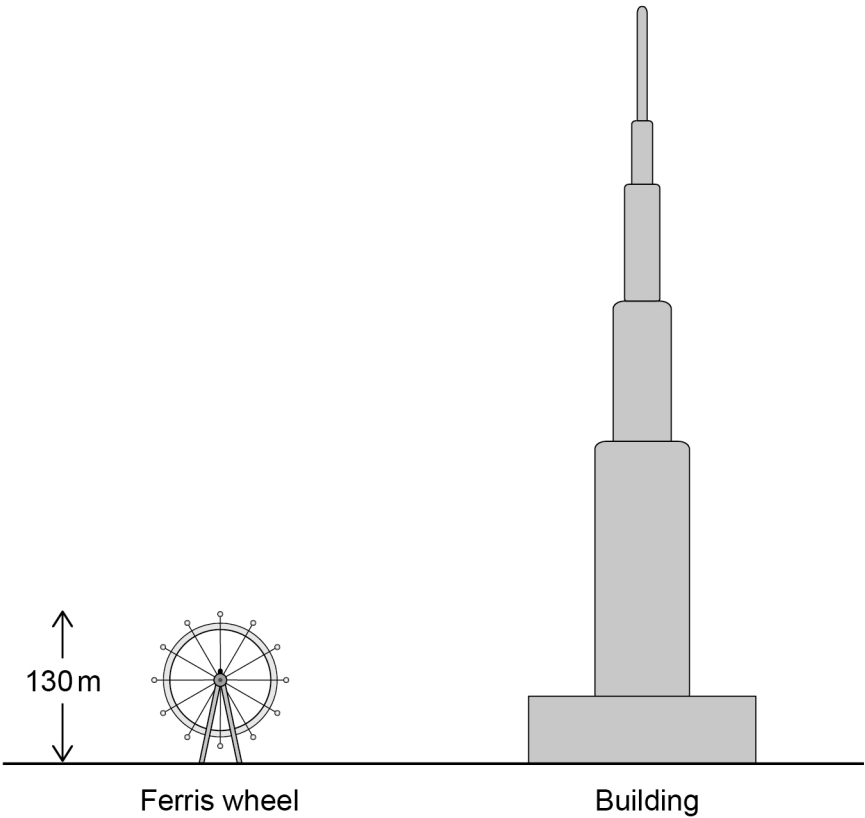
5

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10 Here is a scale drawing.



The Ferris wheel has a height of 130 m
Work out the height of the building.

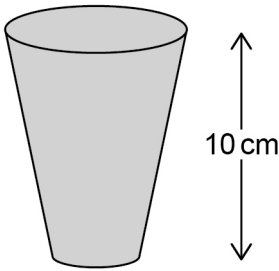
[3 marks]

Answer _____ m

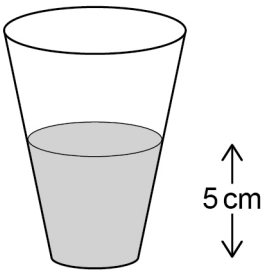


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11 Jo has a full cup of coffee.



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]

4

Turn over ►

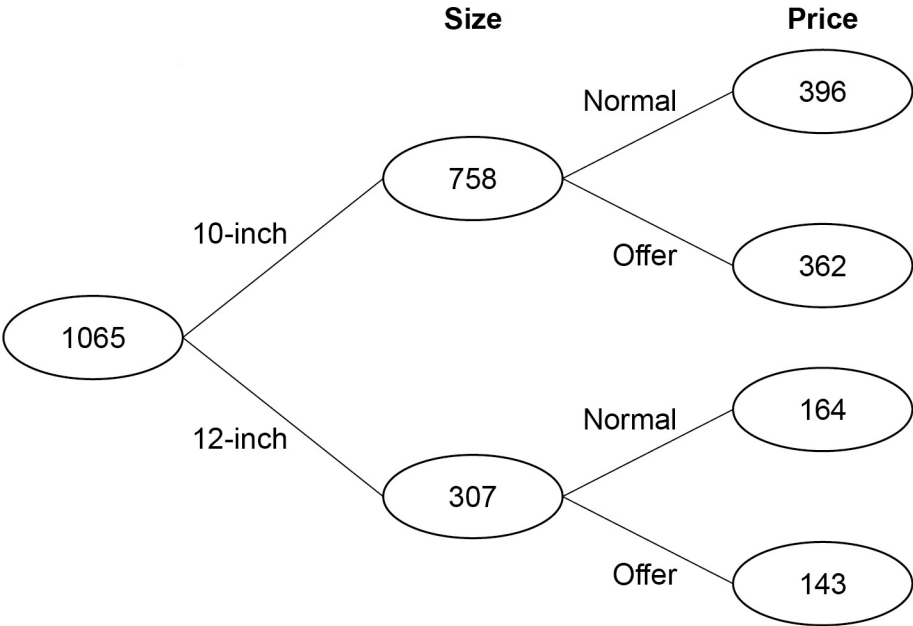


12 A takeaway sells 10-inch pizzas and 12-inch pizzas.
Here is some information about the numbers sold in two weeks.

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 _____



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13

A car travels 3.5 miles in 5 minutes.

Work out the average speed in miles per hour.

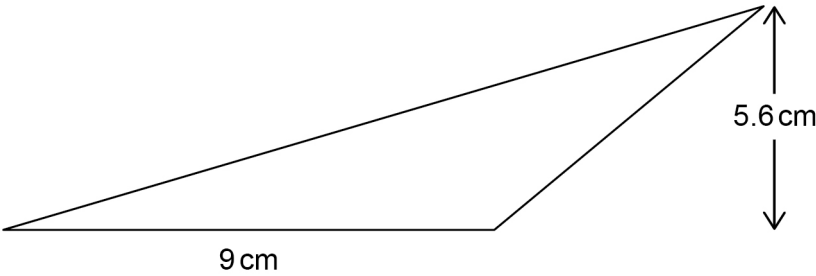
[3 marks]

Answer _____ mph

14

A triangle has base 9 cm and perpendicular height 5.6 cm

Not drawn
accurately



Work out the area of the triangle.

[2 marks]

Answer _____ cm²



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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]

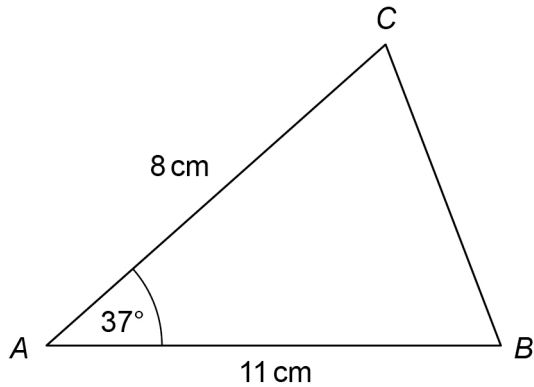
Answer _____



16

A sketch of triangle ABC is shown.

Not drawn
accurately



In the space below, complete an accurate drawing of triangle ABC .

[2 marks]

A ————— B



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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

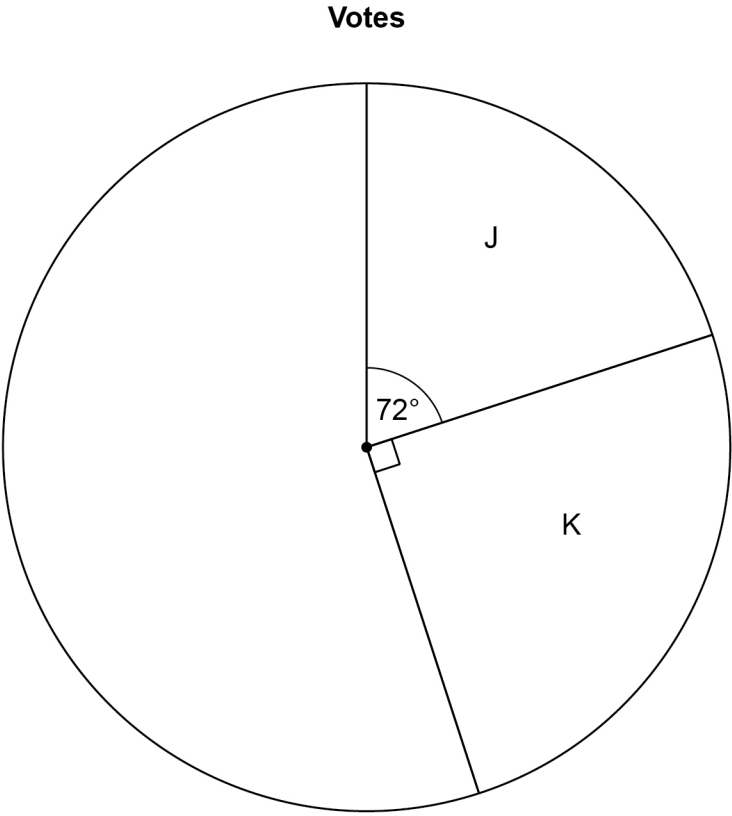
Turn over for the next question

4

Turn over ►



- 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]



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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]

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

Turn over for the next question

Turn over ►



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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 _____

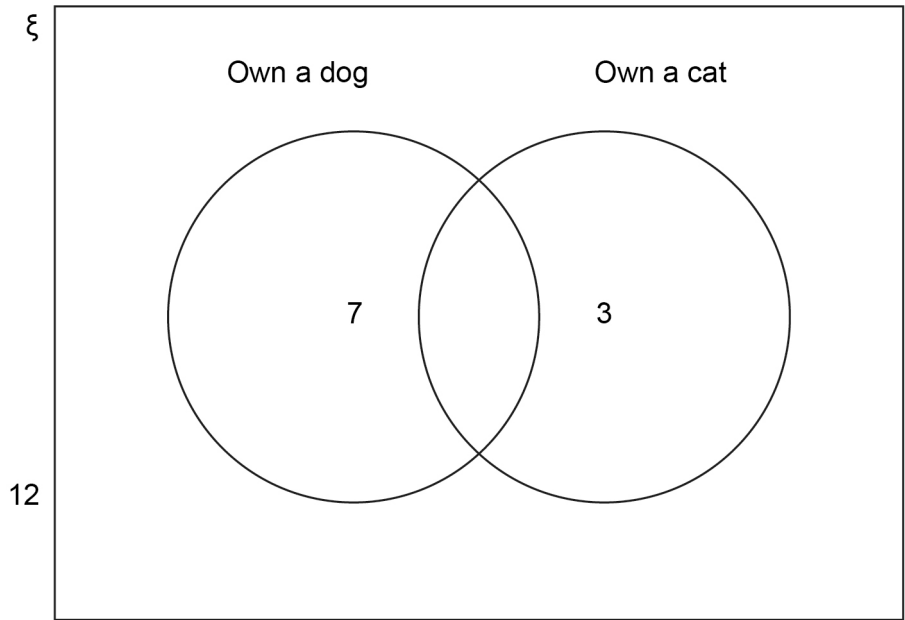
Turn over for the next question



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 _____



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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 _____

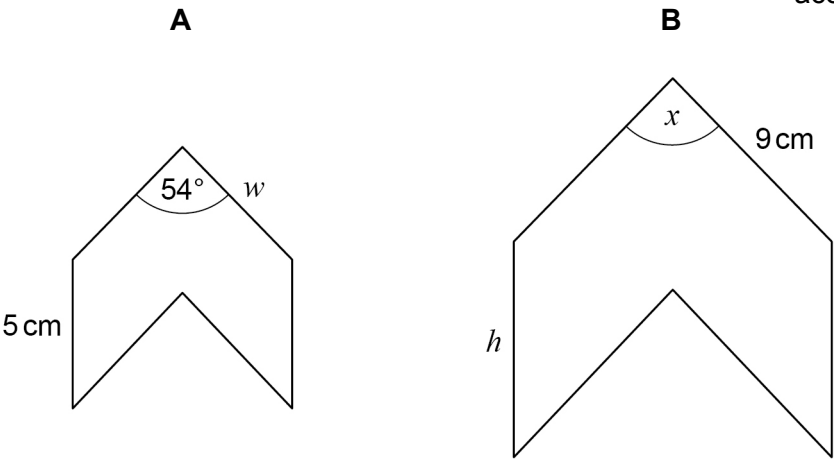
Turn over for the next question



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25 A and B are similar shapes.
B is an enlargement of A with scale factor 1.5

Not drawn
accurately



Work out the values of x , h and w .

[3 marks]

$x =$ _____ degrees

$h =$ _____ cm

$w =$ _____ cm



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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 for the next question



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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]



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28 The cost of a ticket increases by 10% to £19.25
Work out the original cost.

[3 marks]

Answer £ _____

Turn over for the next question



29 The n th 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 _____



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

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

Answer

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

END OF QUESTIONS



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ANSWER IN THE SPACES PROVIDED**

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