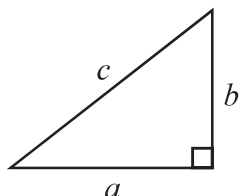


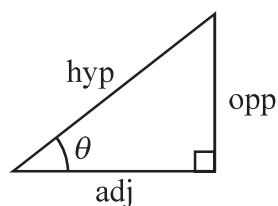
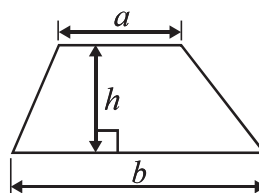
International GCSE MATHEMATICS

FORMULAE SHEET – FOUNDATION TIER

Pythagoras' Theorem
 $a^2 + b^2 = c^2$



Area of a trapezium = $\frac{1}{2}(a + b)h$



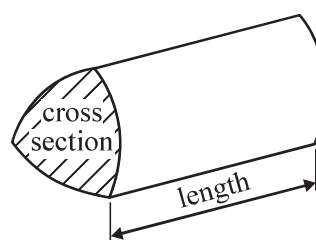
adj = hyp \times cos θ
 opp = hyp \times sin θ
 opp = adj \times tan θ

Volume of prism = area of cross section \times length

or $\sin \theta = \frac{\text{opp}}{\text{hyp}}$

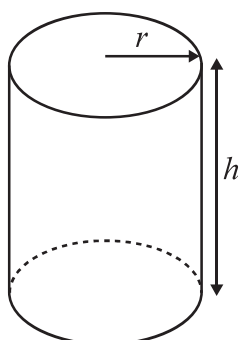
$\cos \theta = \frac{\text{adj}}{\text{hyp}}$

$\tan \theta = \frac{\text{opp}}{\text{adj}}$



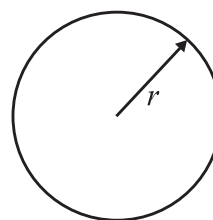
Circumference of circle = $2\pi r$

Area of circle = πr^2



Volume of cylinder = $\pi r^2 h$

Curved surface area of cylinder = $2\pi r h$



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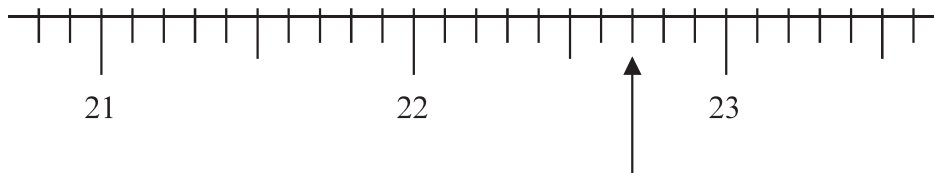


Answer ALL TWENTY THREE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 (a)



Write down the number marked with the arrow.

.....
(1)

(b)



Mark with an arrow (↑) the number 5.26

(1)

(Total for Question 1 is 2 marks)

2

prime	factor	multiple
square	triangular	sum

Correctly complete the following four statements by writing a word from the box on each of the dotted lines.

(i) 10 is a of 40

(ii) 49 is a number.

(iii) 17 is a number.

(iv) 48 is a of 8

(Total for Question 2 is 4 marks)











3 Calvin asked some teachers how many children they have.

The table shows information about his results.

Number of children	0	1	2	3
Number of teachers	8	24	16	10

Calvin started to draw a pictogram for the information in the table.

He showed the information for teachers with 0 and 1 child.

Number of children							
0							
1							
2							
3							

(a) How many teachers does  represent?

.....
(1)

(b) Complete the pictogram for the information in the table.

.....
(2)

(c) Find the total number of teachers Calvin asked.

.....
(1)

(d) Find the ratio of the number of teachers with 1 child to the number of teachers with 2 children.
Give your ratio in its simplest form.

.....
(2)

(Total for Question 3 is 6 marks)



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4 (a) Write 124 correct to the nearest 10

.....
(1)

(b) Write the number 3821 in words.

.....
.....
(1)

(c) Write 80.75 correct to the nearest whole number.

.....
(1)

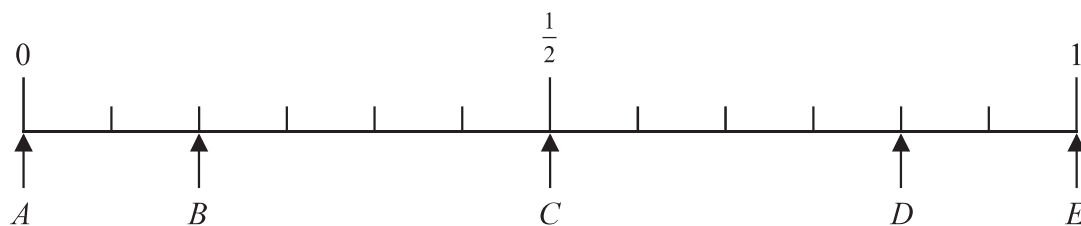
(d) Find the sum of 1727 and 1415

.....
(1)

(Total for Question 4 is 4 marks)



5 Here is a probability scale.



Jasmin has a bag of 12 sweets.

There are 6 red sweets, 2 yellow sweets and 4 green sweets.

Jasmin takes at random a sweet from the bag.

Write down the letter of the arrow that points to the probability that

(i) Jasmin takes a red sweet,

.....

(ii) Jasmin takes a sweet that is **not** yellow,

.....

(iii) Jasmin takes a purple sweet.

.....

(Total for Question 5 is 3 marks)

6 Here are the first five terms of a number sequence.

3 9 15 21 27

(a) (i) Write down the next term of the sequence.

.....

(ii) Explain how you found your term.

.....

(2)

Here is the rule to find the next term of a different sequence.

Multiply the previous term by 3 and then subtract 5

The first term of this sequence is 12

(b) Find the second term of the sequence.

.....

(1)

(Total for Question 6 is 3 marks)



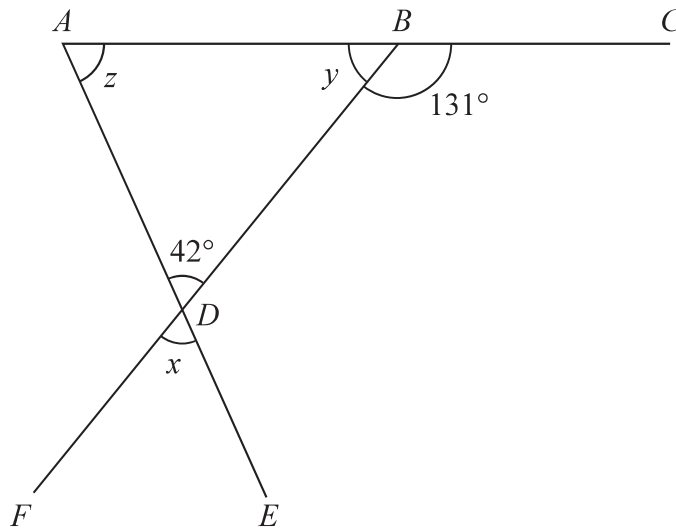


Diagram **NOT**
accurately drawn

ABC , BDF and ADE are straight lines.

(a) Write down the size of angle x .

.....
(1)

(b) Work out the size of angle y .

.....
(1)

(c) (i) Work out the size of angle z .

.....

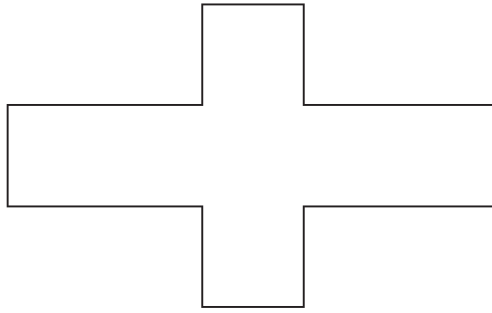
(ii) Give a reason for your answer.

.....
(2)

(Total for Question 7 is 4 marks)

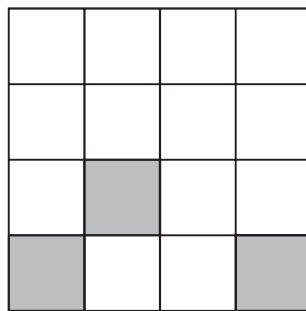


8



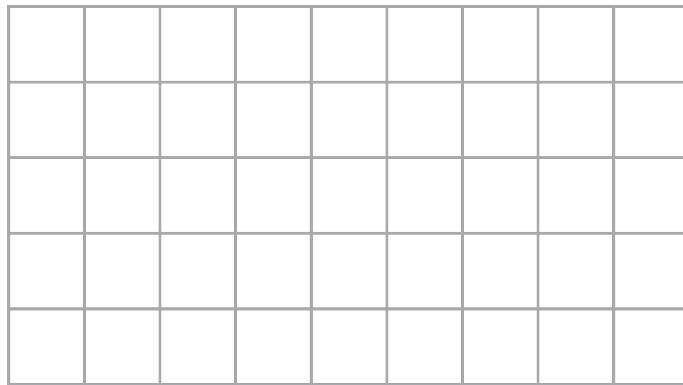
(a) On the shape above, draw the lines of symmetry of the shape. (1)

(b) Shade 5 more squares of the shape below so that the shape has rotational symmetry of order 4



(1)

(c) On the grid, draw a quadrilateral with 1 line of symmetry and no rotational symmetry.



(1)

(Total for Question 8 is 3 marks)

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- 9 (a) Write these decimals in order of size.
Start with the smallest decimal.

0.607 0.66 0.0632 0.615 0.00679

.....
(1)

- (b) Write 24 as a fraction of 80
Give your fraction in its simplest form.

.....
(2)

- (c) Write 9% as a decimal.

.....
(1)

43% of a class had a school lunch.

- (d) What percentage of the class did not have a school lunch?

..... %
(1)

- (e) Work out $\frac{2}{9}$ of 18.54 kg.

..... kg
(2)

- (f) Increase 4600 by 27%

.....
(3)

(Total for Question 9 is 10 marks)



10 Here is a number machine.



(a) Work out the output when the input is -2

.....
(1)

(b) Work out the input when the output is 24

.....
(2)

(Total for Question 10 is 3 marks)

11 ABC is an isosceles triangle.

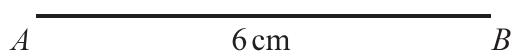
$$AB = 6 \text{ cm}$$

$$AC = BC = 5 \text{ cm}$$

Use ruler and compasses to construct triangle ABC .

You must show all your construction lines.

The line AB has been drawn for you.



(Total for Question 11 is 2 marks)



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12 At a school fete, Colin is selling drinks.
He sells tea, coffee and juice.
Marion is selling food.
She sells burgers and pizzas.

Jenson buys one drink and one food item.

(a) Write down all the possible combinations Jenson can buy.

.....

.....

.....

(2)

Each burger costs £1.65
Each pizza costs £3.10

Caroline buys 3 burgers and 4 pizzas.

She pays with a £20 note.

(b) Work out how much change she should get.

£.....
(3)

(Total for Question 12 is 5 marks)



13 (a) Simplify $9x + 7y - 2x - 10y$

.....
(2)

(b) Simplify $8t \times 3t$

.....
(1)

(c) Factorise $7h + h^2$

.....
(1)

(Total for Question 13 is 4 marks)

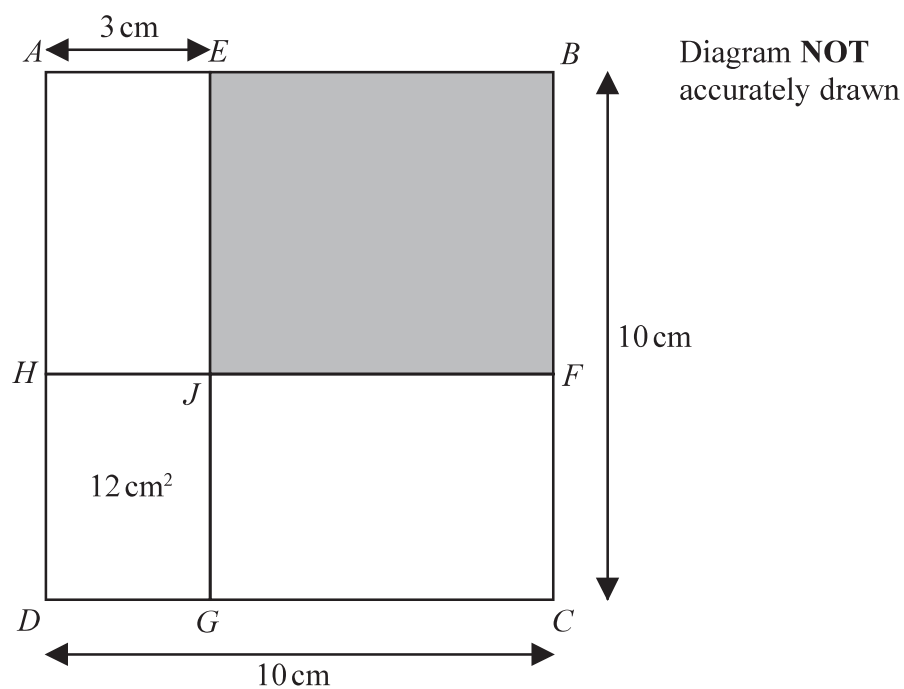


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14 $ABCD$ is a square, with sides of length 10 cm, made from four rectangles.



EJG and HJF are straight lines.
 E is the point on AB such that $AE = 3$ cm.
 The area of rectangle $DHJG$ is 12 cm^2

Find the area of the shaded rectangle $EBFJ$.

..... cm^2

(Total for Question 14 is 4 marks)



15 (a) Write down the cube root of 64

.....
(1)

(b) Calculate the value of $2^3 \times 4^5$

.....
(2)

(c) Express 600 as a product of powers of its prime factors.
Show your working clearly.

.....
(3)

(Total for Question 15 is 6 marks)

16 Three integers have a mean of 7, a median of 5 and a range of 14

Find the three integers.

.....
(Total for Question 16 is 2 marks)



17

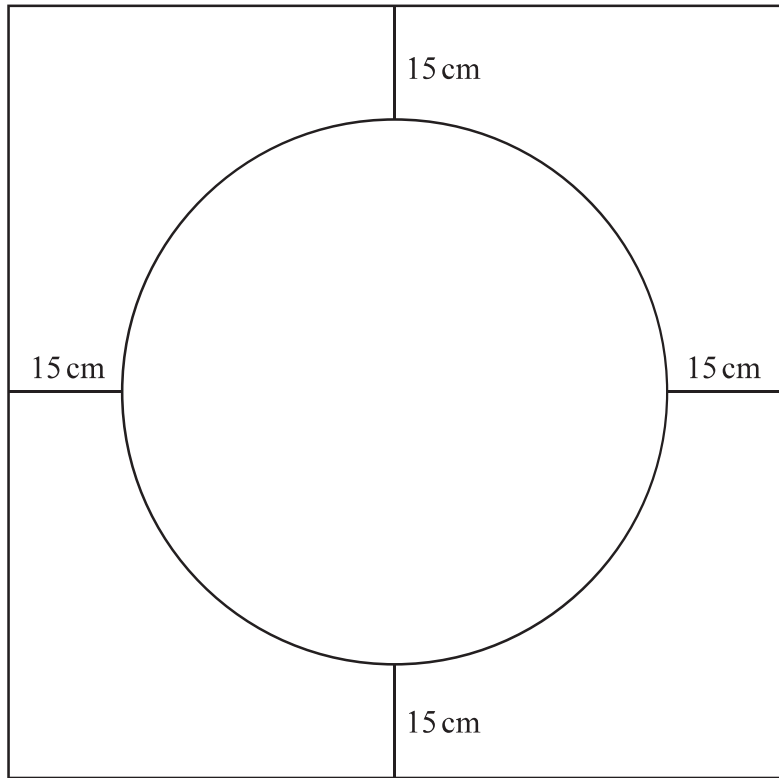


Diagram **NOT** accurately drawn

The diagram shows a design made from wire.

The design is made from
 a square with side 70 cm,
 a circle with diameter 40 cm,
 4 straight pieces each of length 15 cm.

Find the total length of wire needed for the design.
 Give your answer correct to the nearest centimetre.

..... cm

(Total for Question 17 is 4 marks)

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18 Rachel, Mario and Sanjit share some money in the ratios 4 : 3 : 9

Mario receives £96

Work out the difference between the amount received by Rachel and the amount received by Sanjit.

£.....

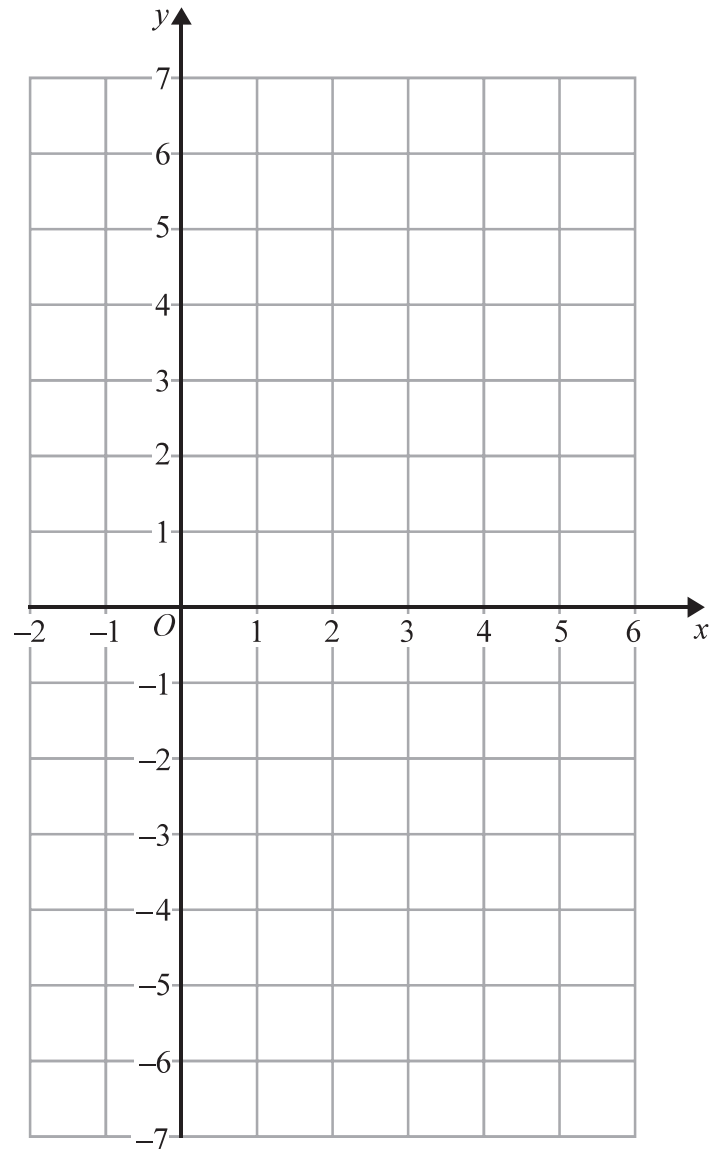
(Total for Question 18 is 3 marks)

19 Show that $5\frac{2}{3} - 3\frac{4}{5} = 1\frac{13}{15}$

(Total for Question 19 is 3 marks)



20 (a) On the grid, draw the graph of $y = -2x + 4$ for values of x from -1 to 5



(4)

(b) Show by shading on the grid, the region defined by all three of the inequalities

$$y \leq -2x + 4$$

$$y \geq -4$$

$$x \geq 1$$

Label your region **R**.

(3)

(Total for Question 20 is 7 marks)



21 (a) Solve $5y + 17 = 10$

$y = \dots\dots\dots$
(2)

(b) Solve $5(q - 3) = 12 - q$
Show clear algebraic working.

$q = \dots\dots\dots$
(3)

(c) Solve the inequality $3 - 7t \geq 31$

$\dots\dots\dots$
(2)

(Total for Question 21 is 7 marks)



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22 The average speed for an aeroplane flight from Dubai to London is 750 km/h.
The flight time from Dubai to London is 7 hours 18 minutes.

(a) Work out the flight distance from Dubai to London.

..... km
(3)

(b) Change 750 kilometres per hour to a speed in metres per second.
Give your answer correct to the nearest whole number.

..... m/s
(3)

(Total for Question 22 is 6 marks)



- 23 The table gives information about the distances, in kilometres, Darren travelled to deliver 100 parcels.

Distance travelled (d km)	Frequency
$0 < d \leq 5$	28
$5 < d \leq 10$	32
$10 < d \leq 15$	20
$15 < d \leq 20$	14
$20 < d \leq 25$	6

- (a) Write down the modal class.

.....
(1)

- (b) Work out an estimate for the mean distance Darren travelled to deliver these parcels.

..... km
(4)

(Total for Question 23 is 5 marks)

TOTAL FOR PAPER IS 100 MARKS

