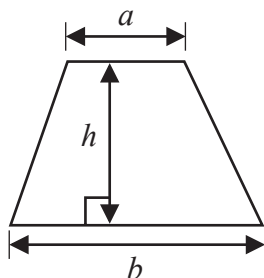




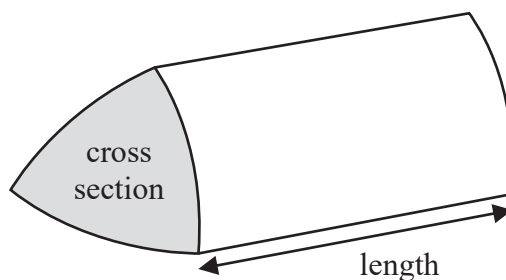
## International GCSE Mathematics

## Formulae sheet – Foundation Tier

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

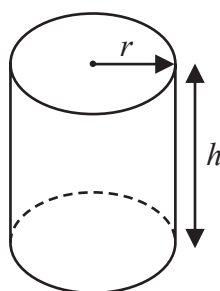


**Volume of prism** = area of cross section  $\times$  length



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

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



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Answer ALL TWENTY SIX questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1 (a) Write these numbers in order of size.  
Start with the smallest number.

122      5      150      71      39

(1)

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

0.7      0.074      3.77      0.37      0.13

(1)

- (c) Write in figures the number five thousand and eighty four.

(1)

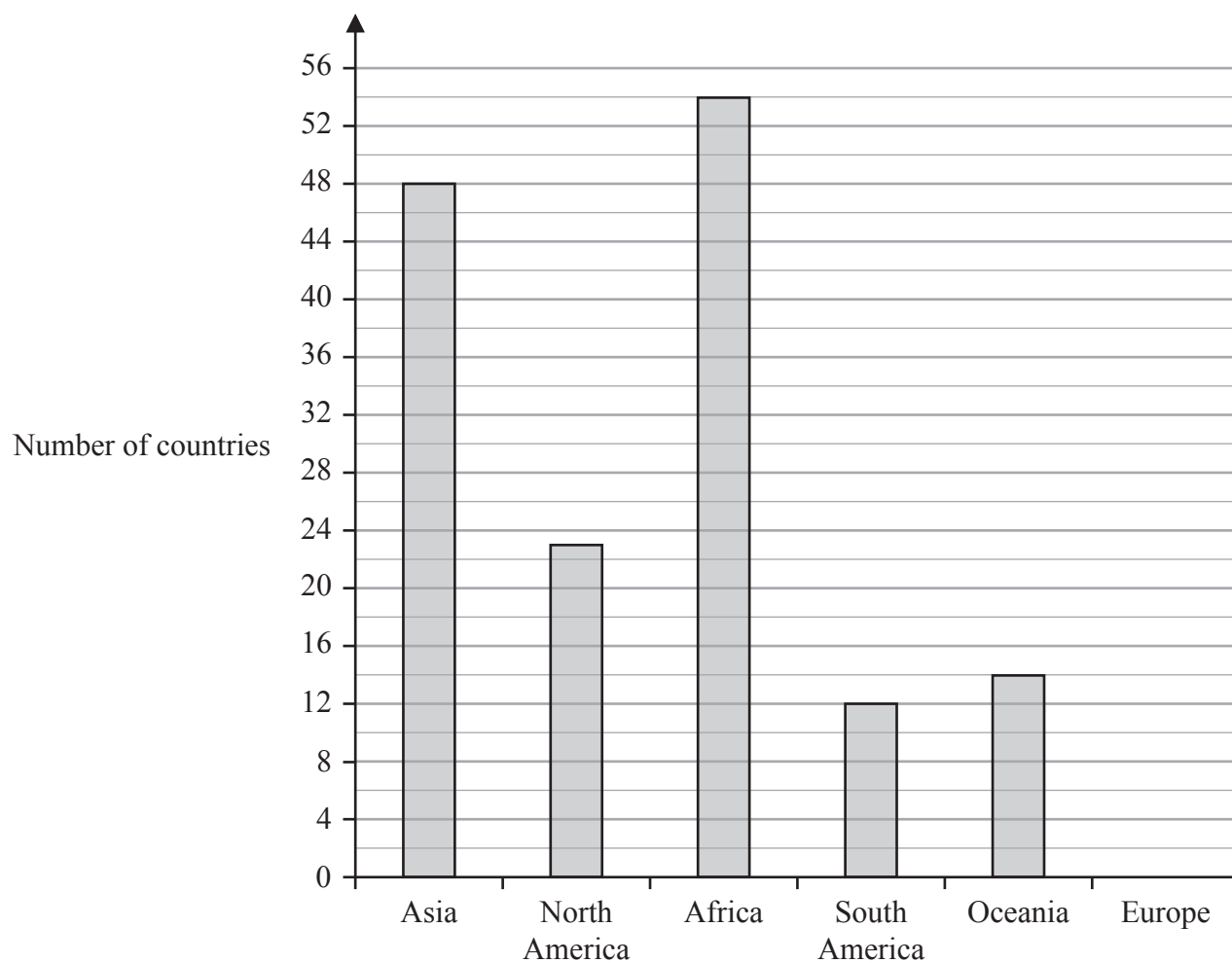
- (d) Write down the value of the 3 in the number 1324

(1)

(Total for Question 1 is 4 marks)



- 2 The bar chart gives information about the total number of countries in each of five continents.



The total number of countries in Europe is 44

- (a) Draw a bar on the bar chart to show this information.

(1)

- (b) Write down the name of the continent with 23 countries.

(1)

- (c) Which continent has 4 times as many countries as South America?

(1)

- (d) Work out the sum of the total number of countries in Africa and the total number of countries in Oceania.

(1)

(Total for Question 2 is 4 marks)

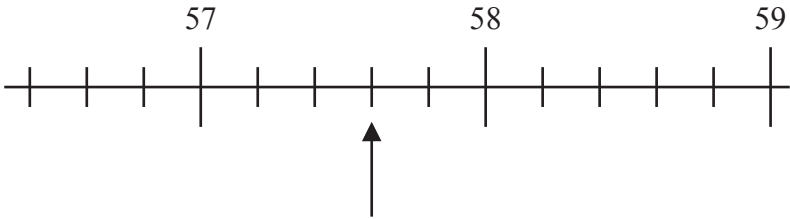


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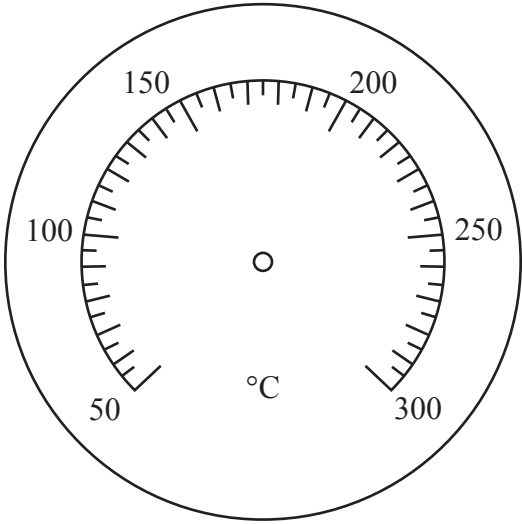
3 The diagram shows part of a number line.



(a) Write down the number marked with the arrow.

(1)

(b) On the diagram below, draw an arrow to show a temperature of 240°C



(1)

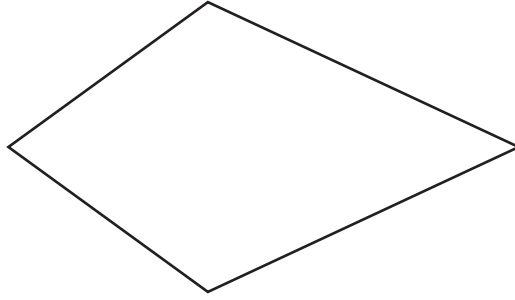
(c) Write the number 0.786 correct to 2 decimal places.

(1)

(Total for Question 3 is 3 marks)



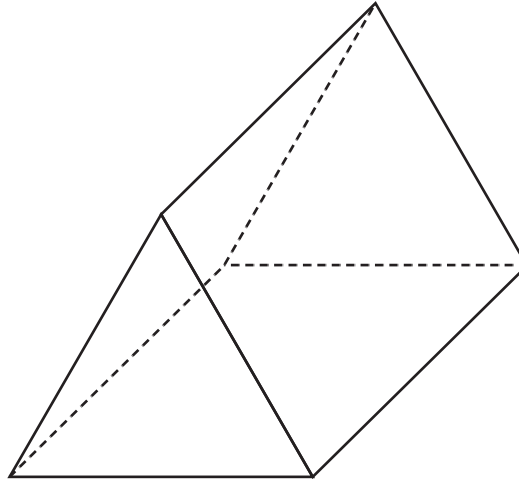
4 Here is a quadrilateral.



(a) What is the mathematical name for this type of quadrilateral?

.....  
(1)

The diagram shows a 3-D shape.



(b) (i) What is the mathematical name for this 3-D shape?

.....  
(1)

(ii) How many edges has this shape?

.....  
(1)

(Total for Question 4 is 3 marks)



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- 5 Mina has 5 litres of water in a bottle and some empty cups.  
She fills as many cups as possible with water from the bottle.  
She fills each cup with 280 millilitres of water.

Work out how many cups Mina completely fills.

(Total for Question 5 is 3 marks)



6 (a) Find the value of  $3.4^2$

(1)

(b) Find the cube root of 373 248

(1)

(c) Write  $7 \times 7 \times 7 \times 7 \times 7 \div 7$  as a single power of 7

(1)

(d) Write one set of brackets in each calculation to make the answer correct.

(i)  $5 + 3 \times 2 = 16$

(1)

(ii)  $10 - 8 - 10 - 6 \div 2 = 0$

(1)

(Total for Question 6 is 5 marks)

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

-3      5      13      21      29

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

.....  
(1)

(ii) Explain how you worked out your answer.

.....  
(1)

(b) Explain why 326 cannot be a term of the sequence.

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

(Total for Question 7 is 3 marks)



8 Barsha buys some nails and some bolts.

Each box of nails costs £2.60

Each pack of bolts costs £3.94

Barsha buys 5 boxes of nails and 4 packs of bolts.

He pays with a £50 note.

Work out how much change he should get.

£.....

(Total for Question 8 is 3 marks)

9 (a) Simplify  $c \times c \times c$

.....  
(1)

(b) Simplify  $12d \times 3e$

.....  
(1)

(c) Solve  $\frac{k}{4} = 7$

$k =$  .....  
(1)

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(d) Solve  $2g - 3 = 6$

$g = \dots\dots\dots$   
(2)

(e) Expand  $x(x - 4)$

$\dots\dots\dots$   
(1)

$P = 4y^2 + w$

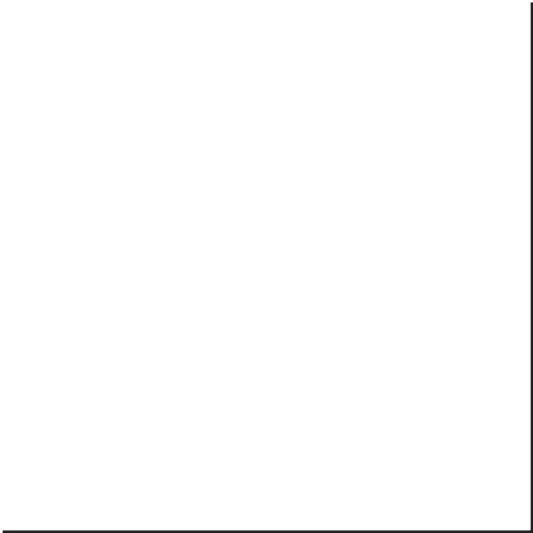
(f) Work out the value of  $P$  when  $y = -3$  and  $w = 2$

$P = \dots\dots\dots$   
(2)

(Total for Question 9 is 8 marks)



- 10 Use a ruler and compasses only to construct a square with sides of length 7 cm.  
You must show all your construction lines.  
Two sides of the square have been drawn for you.



(Total for Question 10 is 2 marks)

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11 A café sells 4 different types of cake.

carrot (C)      fruit (F)      lemon (L)      madeira (M)

Nala is going to choose 2 **different** types of cake.

(a) Write down all the possible combinations she can choose.

.....

.....

.....

(2)

The two-way table gives some information about the flavours of ice creams sold by the café on Saturday and on Sunday.

|          | Chocolate | Mint | Vanilla | Total |
|----------|-----------|------|---------|-------|
| Saturday |           | 11   | 28      |       |
| Sunday   |           | 20   | 13      | 49    |
| Total    | 48        | 31   | 41      |       |

(b) Complete the two-way table.

.....

.....

.....

(2)

Nala asks 100 students whether they prefer cake or ice cream.

33 of the students prefer cake.

One of the 100 students is chosen at random.

(c) Find the probability that this student **does not** prefer cake.

.....

(1)

(Total for Question 11 is 5 marks)

**12** The size of each exterior angle of a regular polygon is  $15^\circ$

Work out the number of sides of the regular polygon.

(Total for Question 12 is 2 marks)

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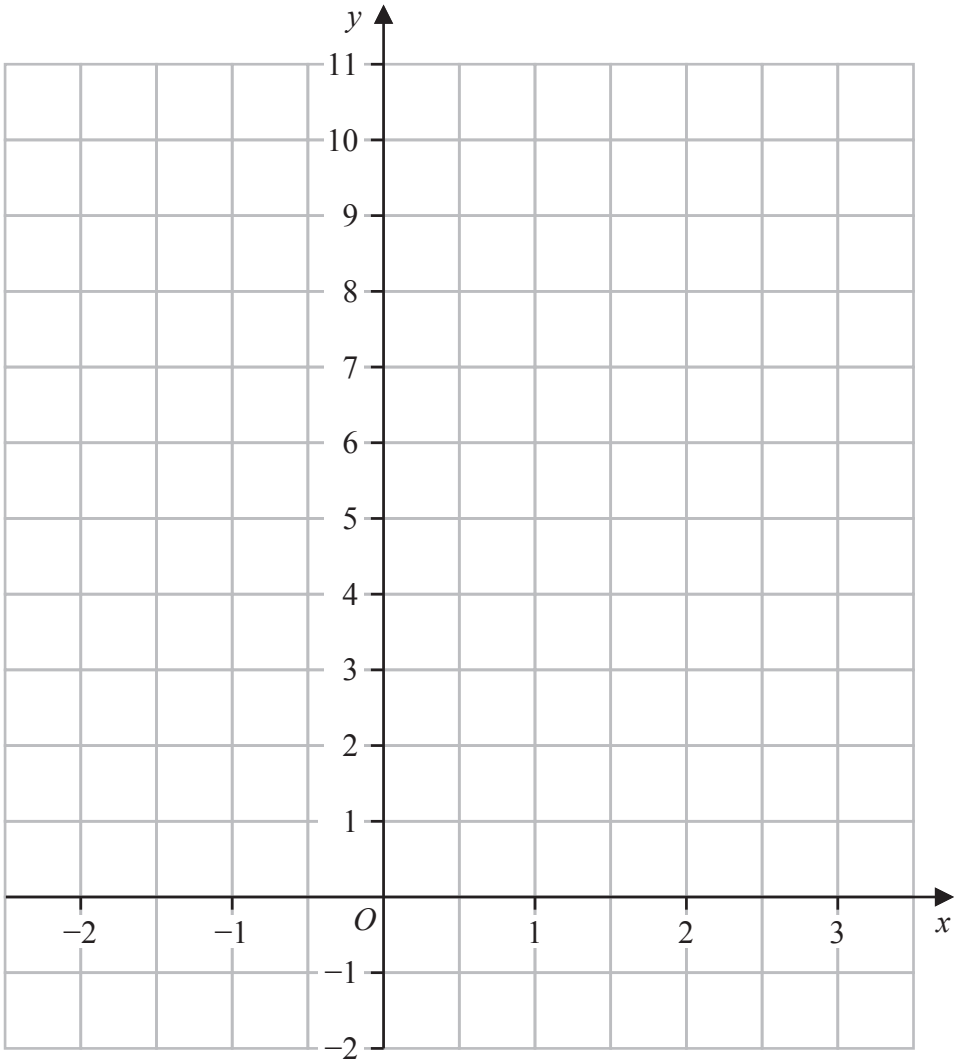
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13 On the grid, draw the graph of  $y = 5 - 2x$  for values of  $x$  from  $-2$  to  $3$



(Total for Question 13 is 3 marks)

14 Bilpa, Claudia and David share 1200 euros.

Bilpa gets  $\frac{1}{5}$  of the 1200 euros.

Claudia gets 42% of the 1200 euros.

David gets the rest of the 1200 euros.

Given that

the amount of money Bilpa gets : the amount of money David gets =  $1 : n$

work out the value of  $n$

$n = \dots\dots\dots$

(Total for Question 14 is 4 marks)

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15 The table shows information about the number of oranges in each of 30 bags.

| Number of oranges | Frequency |
|-------------------|-----------|
| 11                | 7         |
| 12                | 8         |
| 13                | 7         |
| 14                | 5         |
| 15                | 1         |
| 16                | 2         |

(a) Write down the mode of the number of oranges in a bag.

.....  
(1)

(b) Work out the mean number of oranges in a bag.

.....  
(3)

(Total for Question 15 is 4 marks)



16 Footballs are made in a factory.

On Monday, 375 footballs per hour were made in the factory.  
On Monday, footballs were made in the factory for 8 hours.

On Tuesday, 20% more footballs were made than on Monday.  
On Tuesday, 300 footballs per hour were made in the factory.

Work out for how many hours the factory made footballs on Tuesday.

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..... hours

(Total for Question 16 is 4 marks)



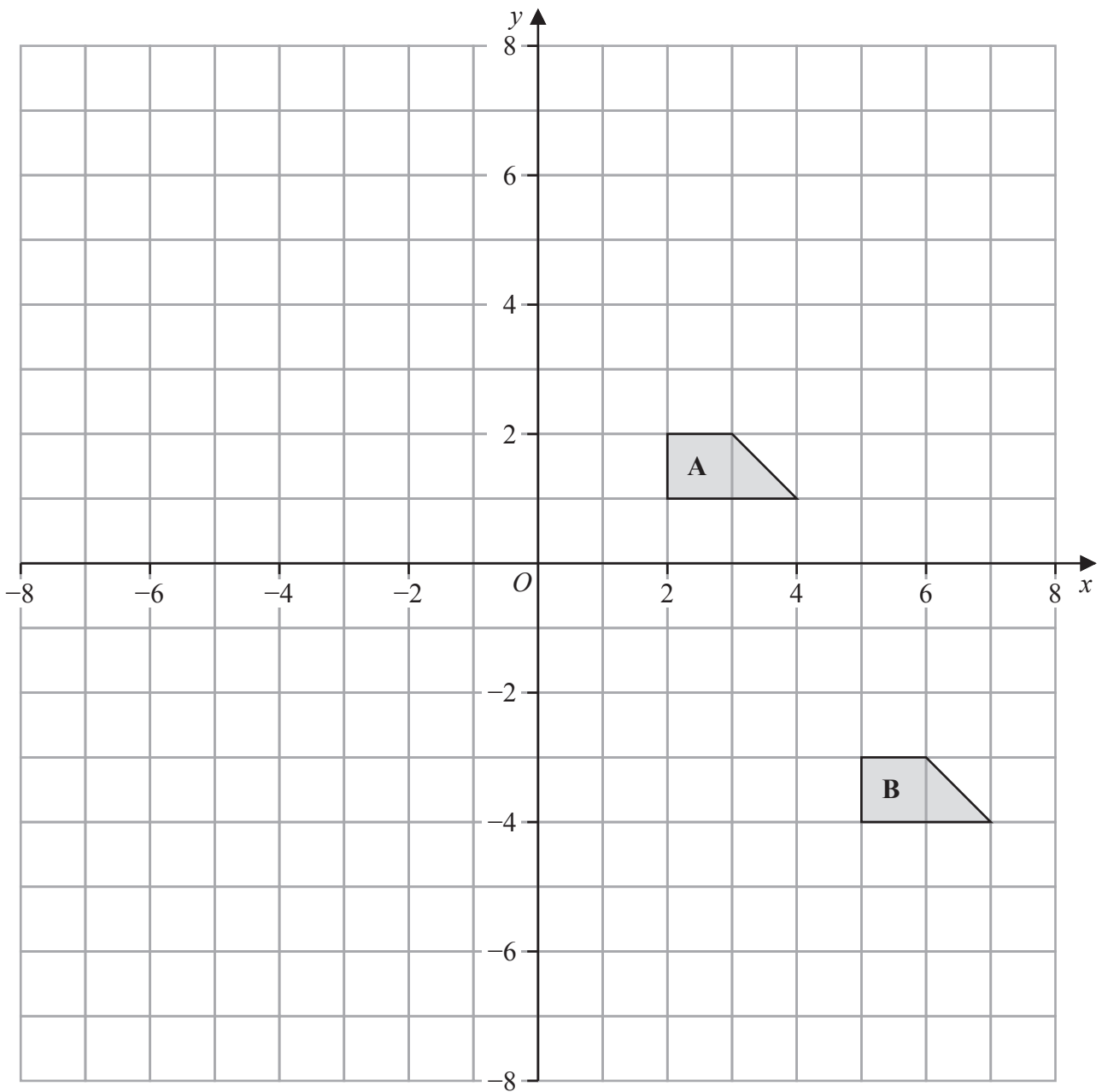
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17 Write 1400 as a product of powers of its prime factors.  
Show your working clearly.

(Total for Question 17 is 3 marks)



18



- (a) Describe fully the single transformation that maps shape A onto shape B

(2)

- (b) On the grid above, rotate shape A  $180^\circ$  about  $(-1, 0)$   
Label your shape C

(2)

(Total for Question 18 is 4 marks)

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19 Here is a list of four numbers written in ascending order of size

$x \qquad x \qquad y \qquad 15$

where  $x$  and  $y$  are integers.

The numbers have

- a median of 12.5
- a range of 4

Find the value of  $x$  and the value of  $y$

$x = \dots\dots\dots$

$y = \dots\dots\dots$

(Total for Question 19 is 2 marks)

- 20  $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$   
 $A = \{\text{factors of } 6\}$   
 $B = \{\text{prime numbers}\}$

(a) List the members of the set

(i)  $A \cup B$

(1)

(ii)  $A'$

(1)

Harpreet states that  $A \cap B = \emptyset$

Harpreet is incorrect.

(b) Explain why.

(1)

$C$  is a set with 4 members such that

the set  $A \cap C$  has 2 members

the set  $B \cap C$  has 2 members

Set  $A \cap C$  and set  $B \cap C$  have no members in common.

(c) List the 4 members of set  $C$

(2)

(Total for Question 20 is 5 marks)

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- 21 The diagram shows the design for a badge, which will be made using wire.  
The design is a circle inside a square  $ABCD$

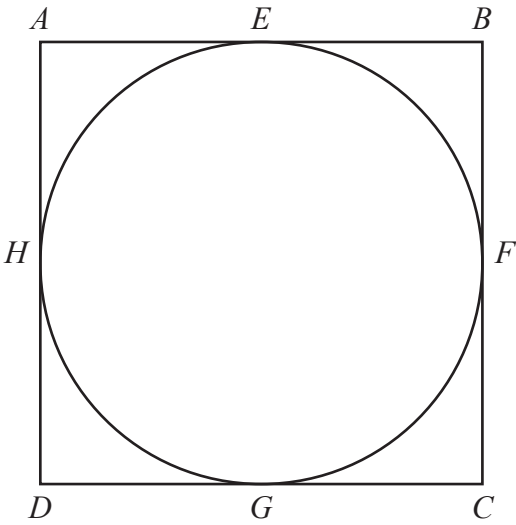


Diagram **NOT**  
accurately drawn

The circle touches the square at the points  $E, F, G$  and  $H$

The area of the square is  $81\text{ cm}^2$

Calculate the total length of wire that will be needed to make the square and the circle.  
Give your answer correct to 3 significant figures.

..... cm

(Total for Question 21 is 4 marks)



22 (a) Solve  $\frac{2f}{3} = 4f - 17$   
Show clear algebraic working.

$f =$  .....  
(3)

(b) Simplify  $(e + 12)^0$  where  $e > 0$

.....  
(1)

(c) Simplify fully  $\frac{12a^4h^6}{4ah^2}$

.....  
(2)

(d) Factorise fully  $20x^5y + 12x^3y^4$

.....  
(2)

(Total for Question 22 is 8 marks)

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23  $\frac{3^{-2} \times 3^5}{3^{10}} = 3^n$

Find the value of  $n$

$n = \dots\dots\dots$

(Total for Question 23 is 2 marks)

24 In a sale, all normal prices are reduced by 17%

The sale price of a fridge is 6225 rupees.

Work out the normal price of the fridge.

$\dots\dots\dots$  rupees

(Total for Question 24 is 3 marks)



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25 (a) Write  $6.04 \times 10^5$  as an ordinary number.

(1)

(b) Write 0.000 07 in standard form.

(1)

(c) Work out  $\frac{7.6 \times 10^{10}}{4 \times 10^5 - 2 \times 10^4}$

Give your answer in standard form.

(2)

(Total for Question 25 is 4 marks)



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26 The diagram shows a hexagon  $ABCDEF$

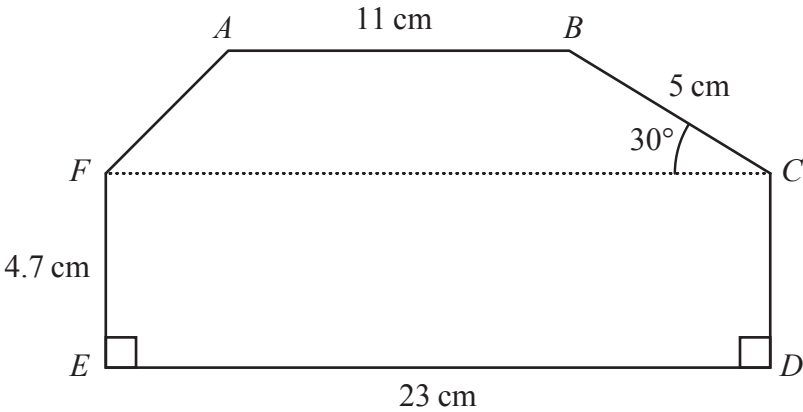


Diagram **NOT** accurately drawn

Angle  $BCF = 30^\circ$   
 $AB$ ,  $FC$  and  $ED$  are parallel.  
Calculate the area of  $ABCDEF$   
Show your working clearly.

.....  $\text{cm}^2$

(Total for Question 26 is 5 marks)

TOTAL FOR PAPER IS 100 MARKS



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