

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 (LINEAR)

F

Foundation Tier Paper 2

Thursday 9 June 2016

Morning

Time allowed: 1 hour 45 minutes

Materials

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 outside the box around each page or on blank pages.
- Do all rough work in this book.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 105.
- The quality of your written communication is specifically assessed in Questions 4, 17 and 22. These questions are indicated with an asterisk (*).
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.

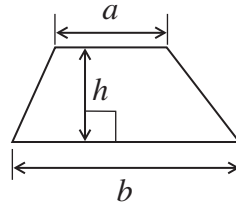
Advice

- In all calculations, show clearly how you work out your answer.

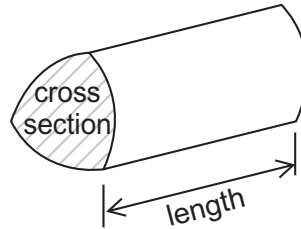


Formulae Sheet: Foundation Tier

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



Volume of prism = area of cross section \times length



Answer **all** questions in the spaces provided.

1 (a) Circle the multiple of 9

4.5 19 36 42 60

[1 mark]

1 (b) Circle the factor of 76

4 6 8 24 152

[1 mark]

1 (c) Circle the cube number.

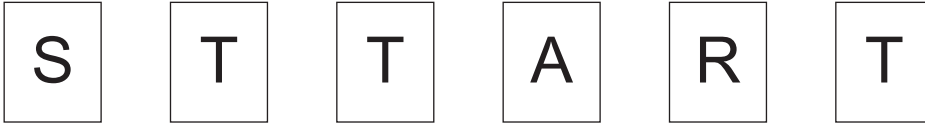
4 16 30 81 1000

[1 mark]

Turn over for the next question



2 (a) Here are some letter cards.



Here is a list of words that describe chance.

impossible unlikely evens likely certain

A card is picked at random.

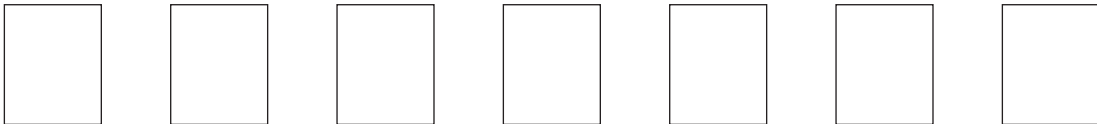
Choose **one** word from the list to describe each sentence.

[2 marks]

The card has a letter T on it. _____

The card has a letter W on it. _____

2 (b) Here are seven blank cards.



Write a letter on each card so that when picking a card at random,

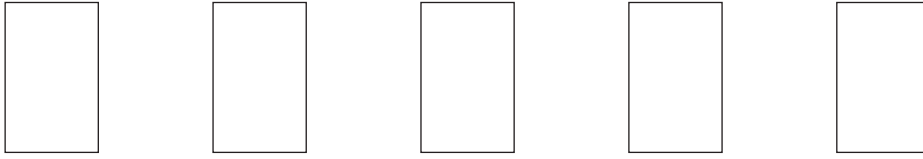
B is likely

and D has twice the chance of being picked as C.

[2 marks]



2 (c) Here are five blank cards.



Write the number 2, 3 or 4 on each card so that when picking a card at random,

4 has the greatest chance of being picked but is **not** certain

and 2 and 3 have the same chance of being picked.

[2 marks]

Turn over for the next question



3 (a) 30 men and 10 women choose one activity from fishing, walking and climbing.

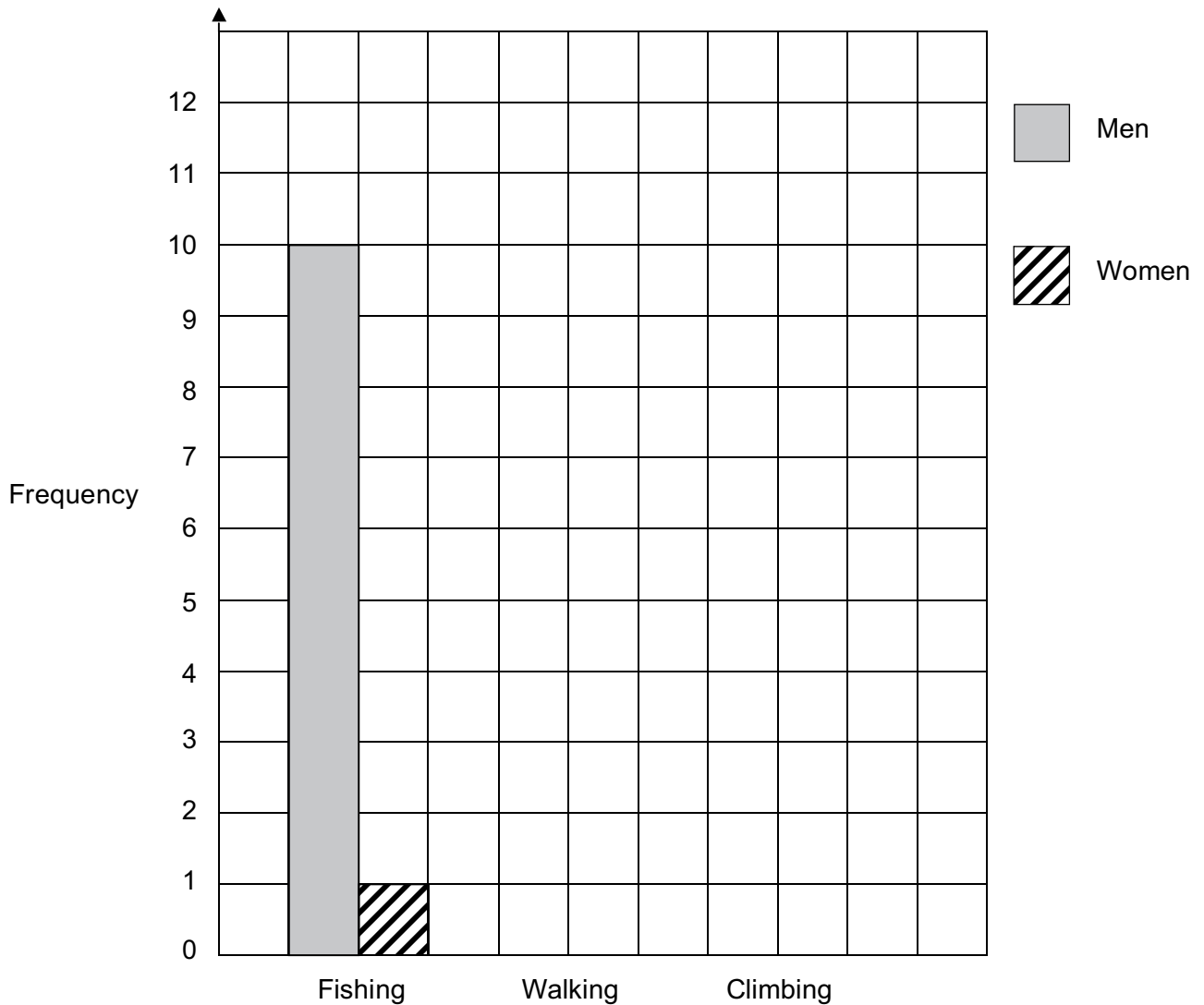
10 men choose fishing.

1 woman chooses fishing.

12 men choose walking.

2 more men than women choose climbing.

Complete the dual bar chart.



[3 marks]



3 (b) 38 children choose a sport.

| Sport | Football | Hockey | Tennis |
|--------------------|----------|--------|--------|
| Number of children | 24 | 10 | 4 |

For each sport a **minimum** of 1 adult for every 8 children is needed.

Work out the **minimum** number of adults needed in total.
Put your answers in the table.

[3 marks]

| Sport | Football | Hockey | Tennis | Total |
|---------------------------------|----------|--------|--------|-------|
| Number of children | 24 | 10 | 4 | 38 |
| Minimum number of adults needed | | | | |

Turn over for the next question



4 Jack's normal pay is £10.50 per hour.

*4 (a) Work out his pay for working 35 hours.

[2 marks]

Answer £ _____

4 (b) On Saturday, his pay per hour is £5.25 **more** than his normal pay of £10.50

How much is he paid for working 4 hours on Saturday?

[2 marks]

Answer £ _____



4 (c) Another week he
works 28 hours at normal pay
and works on Saturday.

His total pay for the week is £372.75

How many hours does he work on Saturday?

[3 marks]

Answer _____ hours

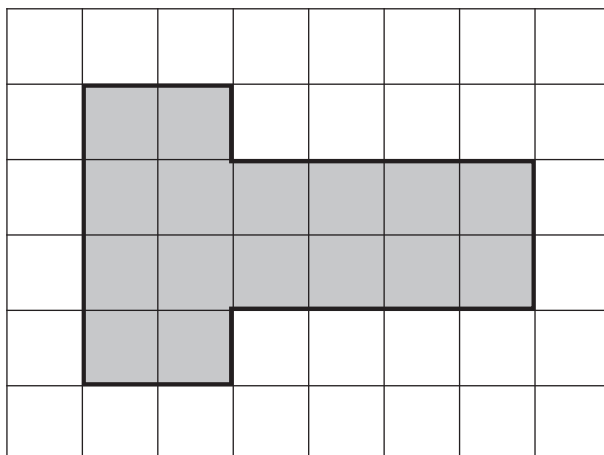
Turn over for the next question

| |
|---|
| 7 |
|---|

Turn over ►



5 (a) The diagram shows a shape on a centimetre grid.



Work out the area of the shape.
State the units of your answer.

[2 marks]

Answer _____

5 (b) Tick any statements that are true for the shape in part (a).

[2 marks]

The shape covers **less** than one-third of the grid.

The shape covers **exactly** one-third of the grid.

The shape covers **more** than one-third of the grid.

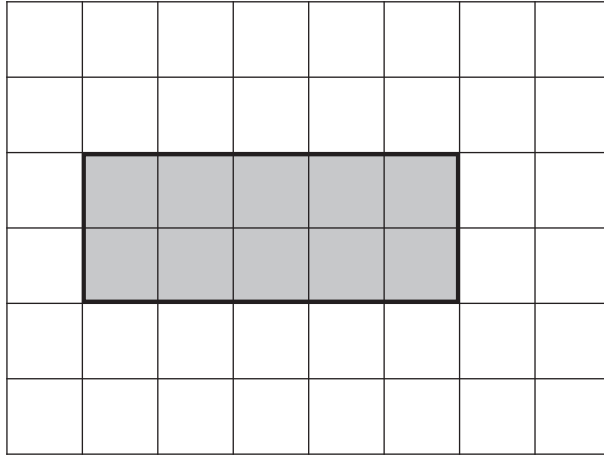
The shape covers **less** than one-half of the grid.

The shape covers **exactly** one-half of the grid.

The shape covers **more** than one-half of the grid.



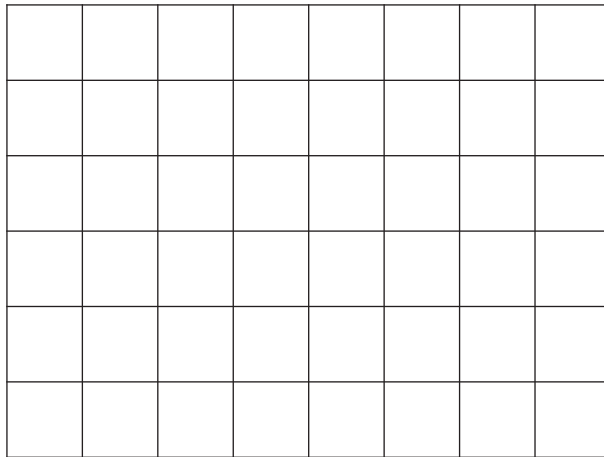
5 (c) On this centimetre grid, a rectangle is shown.



On the centimetre grid below, draw a different rectangle
with the **same** perimeter and a **smaller** area.

Use whole squares only.

[2 marks]



- 6 (a)** Ali is paid £20 000 a year.
He saves three-eighths of this amount.

How much does he save?

[2 marks]

Answer £ _____

- 6 (b)** Belle is paid £32 000 a year.
Her rent is £6000

Write the rent as a percentage of her pay.

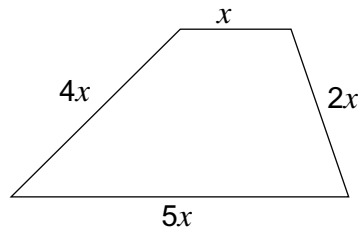
[2 marks]

Answer _____ %



- 7 The diagram shows a trapezium.
All sides are measured in centimetres.

Not drawn accurately



Work out the total length of the sides when $x = 2.5$ cm

[2 marks]

Answer _____ cm

Turn over for the next question



- 8 (a)** Work out $10 \text{ km} + 1.5 \text{ km} + 500 \text{ m}$
Give your answer in metres.

[2 marks]

Answer _____ metres

- 8 (b)** How many 125 millimetre glasses can be filled from a 2 litre bottle of water?

[2 marks]

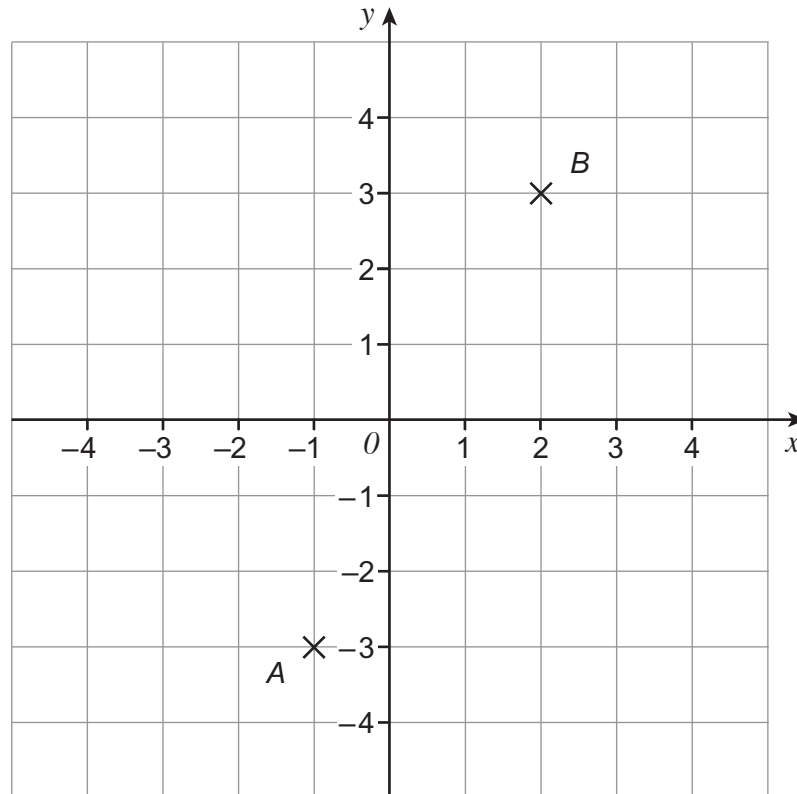
Answer _____

- 8 (c)** Use $5 \text{ miles} = 8 \text{ km}$ to show that 240 miles is approximately 380 km

[2 marks]



- 9 Points A and B are plotted on the centimetre grid.



- 9 (a) Write down the coordinates of A .

[1 mark]

Answer (_____ , _____)

- 9 (b) C is a point on the grid.
The coordinates of C are integers.

$$AC = 3 \text{ cm} \quad \text{and} \quad BC = 6 \text{ cm}$$

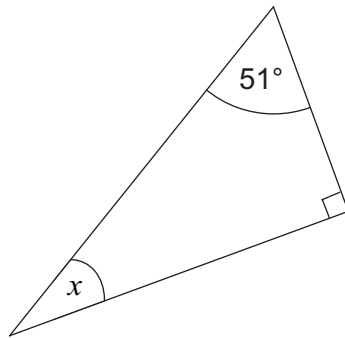
Work out the coordinates of C .

[2 marks]

Answer (_____ , _____)



10 (a)



Not drawn accurately

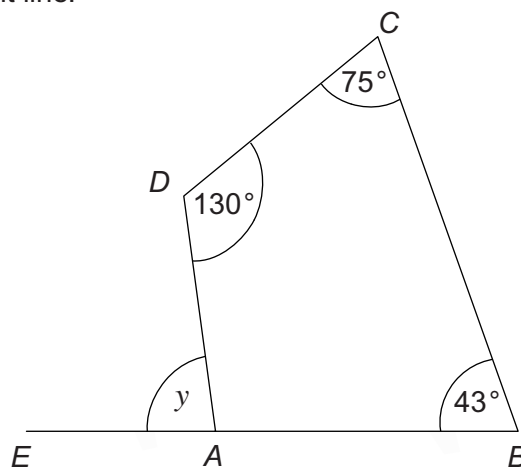
Work out the size of angle x .

[1 mark]

Answer _____ degrees

10 (b)

$ABCD$ is a quadrilateral.
 EAB is a straight line.



Not drawn accurately

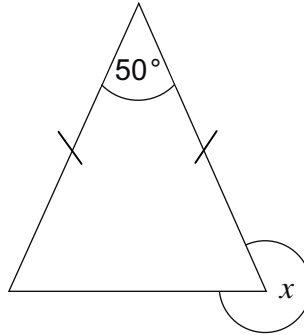
Work out the size of angle y .

[2 marks]

Answer _____ degrees



- 10 (c) The diagram shows an isosceles triangle.



Not drawn accurately

Work out the size of angle x .

[3 marks]

Answer _____ degrees

- 11 (a) Simplify $5a + 4b - 2a + b$

[2 marks]

Answer _____

- 11 (b) Solve $4x - 7 = 9$

[2 marks]

$x =$ _____



12 Here is a menu.

| Menu | |
|---------|-------------|
| Starter | Main course |
| Soup | Curry |
| Melon | Burger |
| Paté | |

Sarah wants to have one starter and one main course.

List **all** the different choices she can have.

[2 marks]



- 13 (a)** Work out the value of 8.2^3
Give your answer to 1 decimal place.

[2 marks]

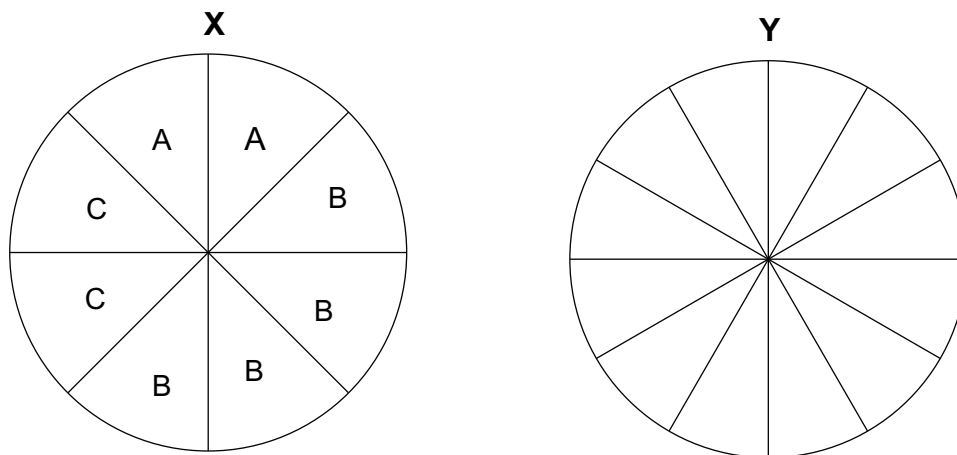
Answer _____

- 13 (b)** Work out the value of $\frac{\sqrt{6.76}}{2.5}$

[1 mark]

Answer _____

- 14** Here are two fair spinners X and Y.



Put the letter A, B or C on each section of spinner Y so that the probability of landing on each letter is the same for each spinner.

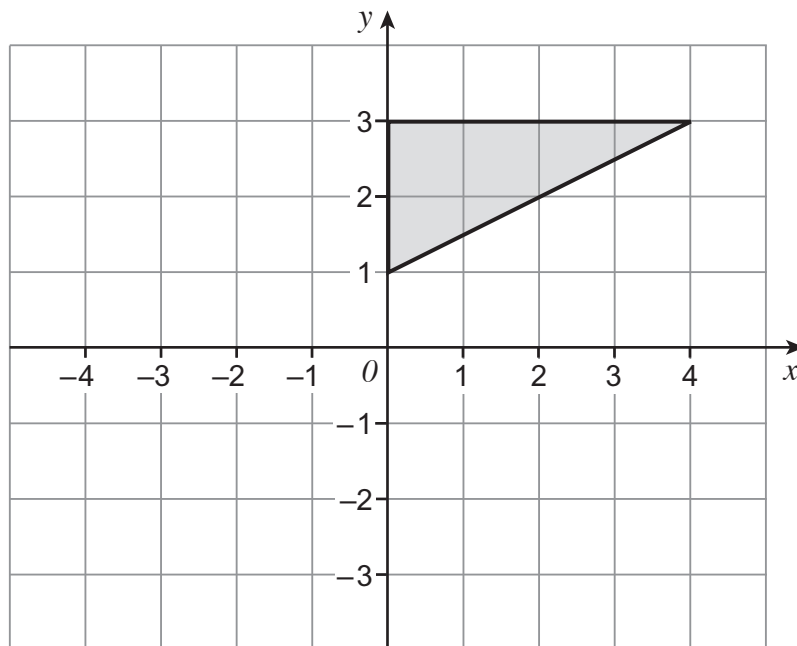
[2 marks]

| |
|---|
| 7 |
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Turn over ►

- 15 (a) Reflect this triangle in the x -axis.

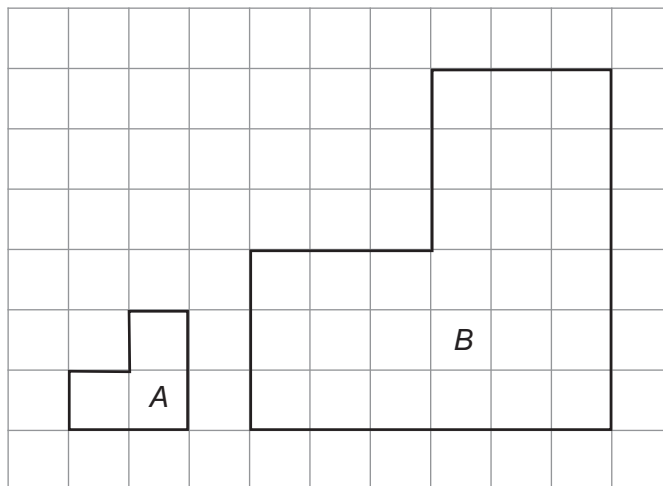
[1 mark]



- 15 (b) Shape B is an enlargement of shape A .

Write down the scale factor of the enlargement.

[1 mark]



Answer _____



16

Sam played in 15 hockey matches.

The stem-and-leaf diagram shows the time he played in each match.

Key: 2 | 5 represents 25 minutes

| | | | | | | |
|---|---|---|---|---|---|---|
| 2 | 5 | 8 | | | | |
| 3 | 0 | 3 | 4 | | | |
| 4 | 1 | 6 | 7 | 8 | | |
| 5 | 4 | 5 | 7 | 8 | 8 | 9 |

The table shows information about the number of goals that Sam scored.

| | | | |
|---|--------------|----------|--------------|
| Number of minutes Sam played in a match | less than 30 | 30 to 45 | more than 45 |
| Average number of goals Sam scored in each match | 0 | 1 | 2 |

Work out the number of goals that Sam scored in the 15 matches.

[3 marks]

Answer _____



***17 (a)** Alice wants to book a holiday for one adult and one child.

| |
|---|
| <p style="text-align: center;">Holiday</p> <p style="text-align: center;">£720 per adult</p> <p style="text-align: center;">£430 per child</p> <p style="text-align: center;">Special Offer 15% off</p> |
|---|

Alice has £1000

Does she have enough money to book this holiday using the special offer?
Tick a box.

Yes

No

You **must** show your working.

[5 marks]



17 (b) Ben changes £800 to Euros before he goes on holiday.
£1 = 1.25 Euro

He spends 895 Euros.

He changes the Euros that he has left to Pounds (£).
The exchange rate is now £1 = 1.40 Euro

How many Pounds does he get back?

[4 marks]

Answer £ _____

Turn over for the next question



18 Here are the ingredients to make 8 biscuits.

| | |
|------|-----------|
| 75 g | flour |
| 50 g | sugar |
| 40 g | butter |
| 2 | egg yolks |

Work out the ingredients to make 20 biscuits.

[3 marks]

_____ g flour

_____ g sugar

_____ g butter

_____ egg yolks



- 19 This formula converts degrees Celsius (C) to degrees Fahrenheit (F).

$$F = \frac{9}{5}C + 32$$

Use the formula to convert 28°C to $^{\circ}\text{F}$
Give your answer to the nearest whole number.

[3 marks]

Answer _____ $^{\circ}\text{F}$

Turn over for the next question



20 (a) The n th term of a sequence is $6 - 2n$

Work out the first three terms of the sequence.

[2 marks]

Answer _____ , _____ , _____

20 (b) Here is the term-to-term rule for a different sequence.

Multiply previous term by 2 and then subtract 3

The third term in this sequence is 31

Work out the **first** term.

[3 marks]

Answer _____



- 21** The table shows information about the pay per hour of 40 people.

| Pay per hour, x (£) | Frequency | | |
|-----------------------|------------|--|--|
| $5 < x \leq 15$ | 14 | | |
| $15 < x \leq 25$ | 12 | | |
| $25 < x \leq 35$ | 11 | | |
| $35 < x \leq 45$ | 2 | | |
| $45 < x \leq 55$ | 1 | | |
| | Total = 40 | | |

- 21 (a)** Which group contains the median pay per hour?
Circle your answer.

[1 mark]

$5 < x \leq 15$ $15 < x \leq 25$ $25 < x \leq 35$ $35 < x \leq 45$ $45 < x \leq 55$

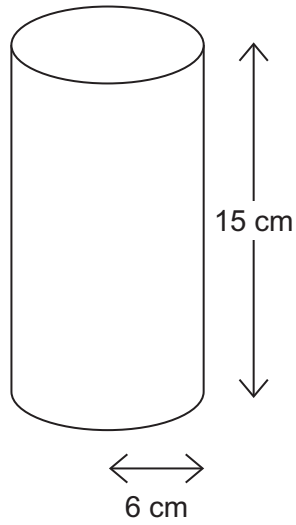
- 21 (b)** Work out an estimate of the mean pay per hour.

[4 marks]

Answer £ _____



22 (a) The diagram shows a cylinder.



The radius of the base is 6 cm

The height is 15 cm

Work out the volume.

[3 marks]

Answer _____ cm^3



***22 (b)** $1000 \text{ cm}^3 = 1 \text{ litre}$

A tank contains $45\,000 \text{ cm}^3$ of water.
The tank leaks at $0.75 \text{ litres/minute}$.

How long does the tank take to empty?

[4 marks]

Answer _____

Turn over for the next question

| |
|---|
| 7 |
|---|

Turn over ►



- 23** A baker makes 130 loaves so that there are
6 times as many white loaves as granary loaves
half as many brown loaves as white loaves.

How many of each type does he make?

[3 marks]

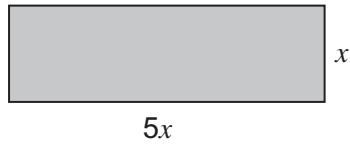
White _____

Brown _____

Granary _____

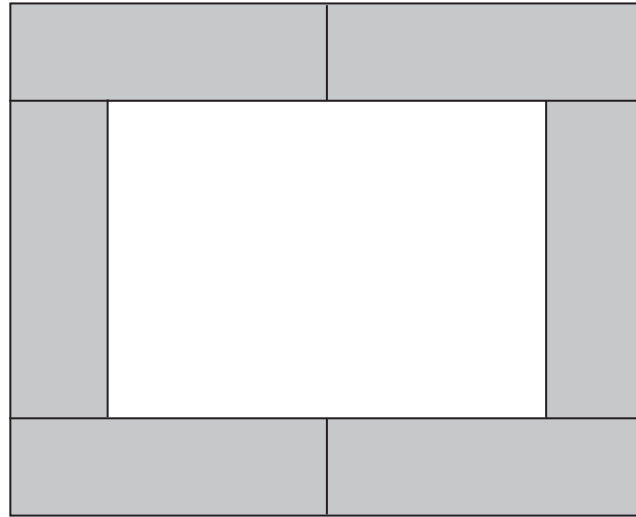


24 The diagram shows a rectangle.



Not drawn accurately

Six of these rectangles are joined to make this shape.



The area of the white rectangle in the middle is 1440 cm^2

Work out the area of **one** shaded rectangle.

[5 marks]

Answer _____ cm^2

END OF QUESTIONS



There are no questions printed on this page

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