

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 2

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Exam Date

Morning

Time allowed: 1 hour 30 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. 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.

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

**1** How many grams are there in 2.5 kilograms?

Circle your answer.

**[1 mark]**

0.0025

250

2005

2500

**2** Which of these can be written as  $\frac{a}{b}$  ?

Circle your answer.

**[1 mark]**

$b \div a$

$a - b$

$a \div b$

$b - a$

**3** Solve  $12x = 3$

Circle your answer.

**[1 mark]**

$x = -9$

$x = \frac{1}{4}$

$x = 4$

$x = 36$

4 What is the value of the digit 7 in 3.72?

Circle your answer.

[1 mark]

$$\frac{1}{70}$$

$$\frac{7}{10}$$

$$\frac{1}{7}$$

$$\frac{7}{100}$$

5 Write down all the factors of 18

[2 marks]

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Answer \_\_\_\_\_

**Turn over for the next question**

**6** A hotel charges

£59 per night for a room

£6.95 for breakfast

£12.50 for an evening meal.

Liz stays at the hotel for 5 nights.

She has 3 breakfasts and 1 evening meal.

How much does she pay altogether?

**[4 marks]**

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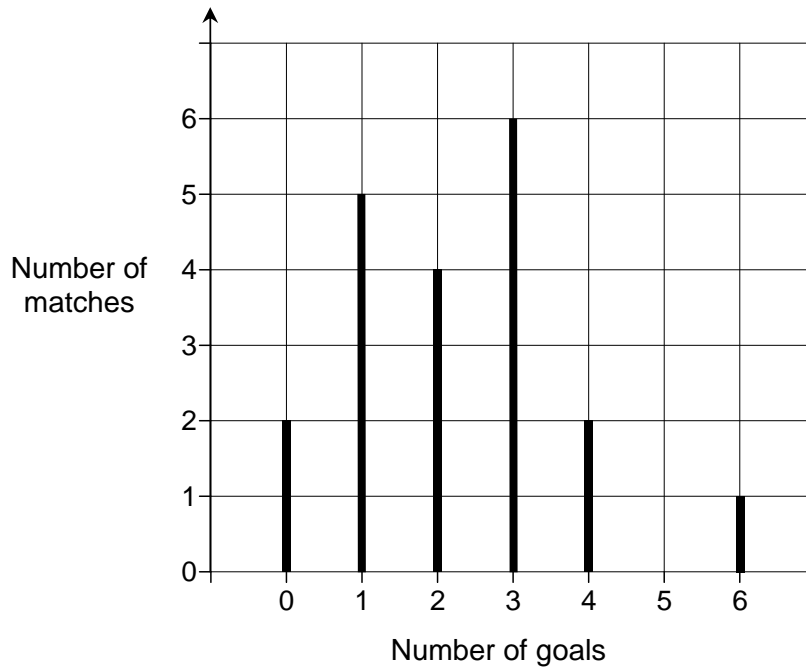
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Answer £ \_\_\_\_\_

- 7 The line graph shows the number of goals scored by a hockey team.



- 7 (a) Which number of goals is the mode?

[1 mark]

Answer \_\_\_\_\_

- 7 (b) How many matches did the hockey team play altogether?

[2 marks]

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Answer \_\_\_\_\_

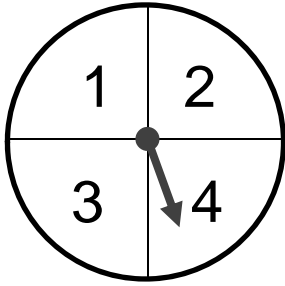
- 7 (c) In one of the matches, this team won by 5 goals.

What was the score in that match?

[1 mark]

Answer \_\_\_\_\_

- 8 A game is played with a fair spinner.



The player spins the spinner twice.

The score is the **difference** between the two numbers.

- 8 (a) Complete the table to show the scores.

[2 marks]

		First spin			
		1	2	3	4
Second spin	1			2	
	2				
	3	2			
	4				

- 8 (b) The player **loses** if the score is 0 or 1  
The player **wins** if the score is 2 or 3

Amy says,

“Two scores win and two scores lose, so the chance of winning is evens.”

Is Amy correct?

Tick a box.

Yes

No

Give a reason for your answer.

[2 marks]

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- 9 A drink is mixed in the ratio

lemonade : orange : cranberry = 6 : 3 : 2

What fraction is orange?

Circle your answer.

[1 mark]

$\frac{3}{8}$

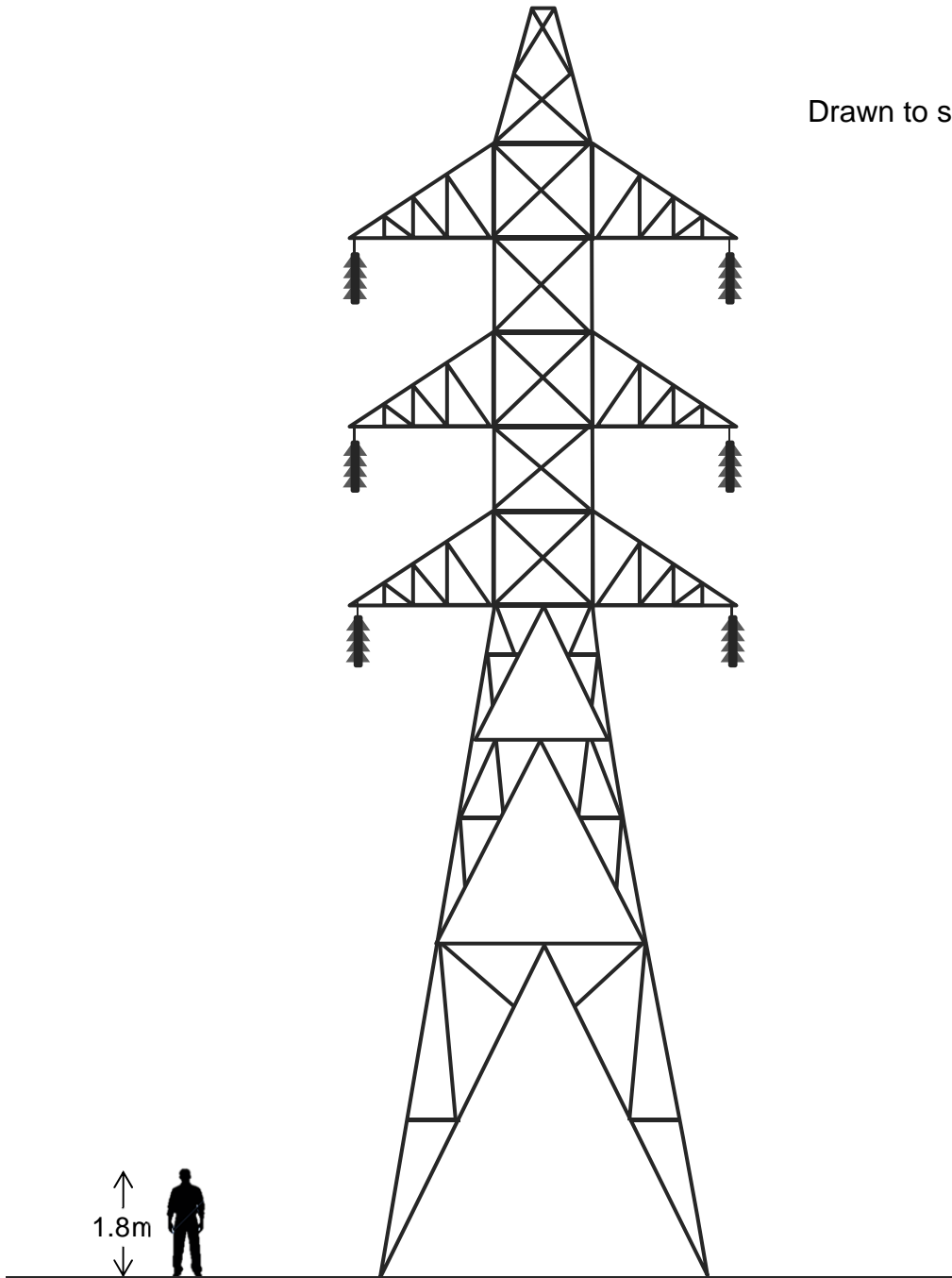
$\frac{2}{11}$

$\frac{3}{11}$

$\frac{6}{11}$

10

Drawn to scale



Use the height of the man to estimate the height of the pylon.

[2 marks]

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Answer \_\_\_\_\_ metres



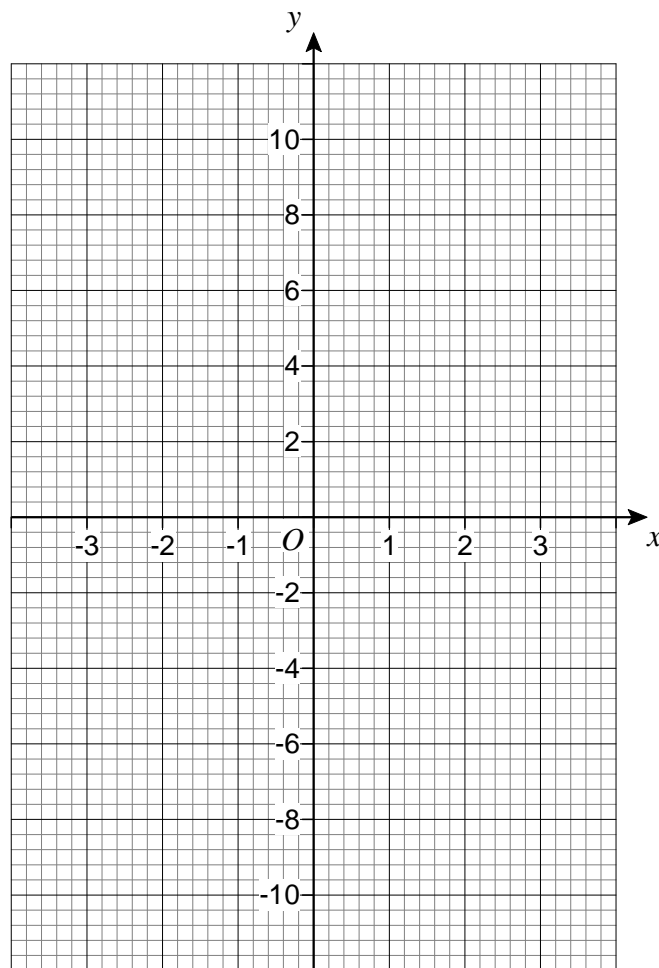
11 (a) Complete the table for  $y = 3x + 1$

[2 marks]

$x$	-3	-2	-1	0	1	2	3
$y$	-8		-2		4		

11 (b) On the grid draw the graph of  $y = 3x + 1$  for values of  $x$  from -3 to 3

[2 marks]



11 (c) Solve  $x = 3x + 1$

[2 marks]

$x =$  \_\_\_\_\_

12 Jody's pay is £315 per week.

She works for  $37\frac{1}{2}$  hours per week.

12 (a) Work out her **hourly** rate of pay.

[2 marks]

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Answer £ \_\_\_\_\_

12 (b) Jody wants to work out her **yearly** pay.

She says,

“There are 4 weeks in a month, so I will multiply £315 by 4

There are 12 months in a year, so I will multiply the answer by 12

$£315 \times 4 \times 12 = £15\ 120$ ”

Does her method give the correct amount for her yearly pay?

Tick a box.

No, her yearly  
pay is more

Yes

No, her yearly  
pay is less

Show working to support your answer.

[2 marks]

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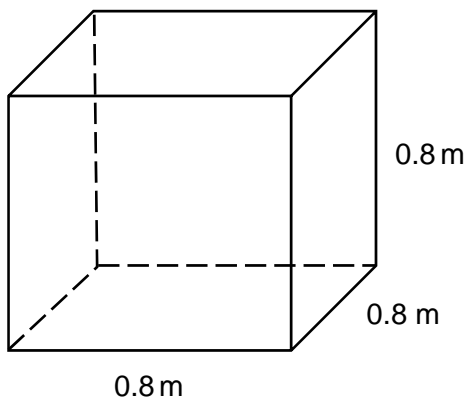


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- 13** A cube has edges of length 0.8 metres.



Work out its volume in **cubic centimetres**.

**[2 marks]**

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Answer \_\_\_\_\_  $\text{cm}^3$

- 14** Three whole numbers have a total of 100  
 The first number is a multiple of 15  
 The second number is ten times the third number.

Work out the three numbers.

**[3 marks]**

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Answer \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

**15** In March, Kim pays the same amount for each song she downloads.  
She pays £35.60 for 40 songs.

In April, she pays 5p **more** for each song.  
She has a £30 voucher.

What is the **maximum** number of songs she can download using the voucher?

**[3 marks]**

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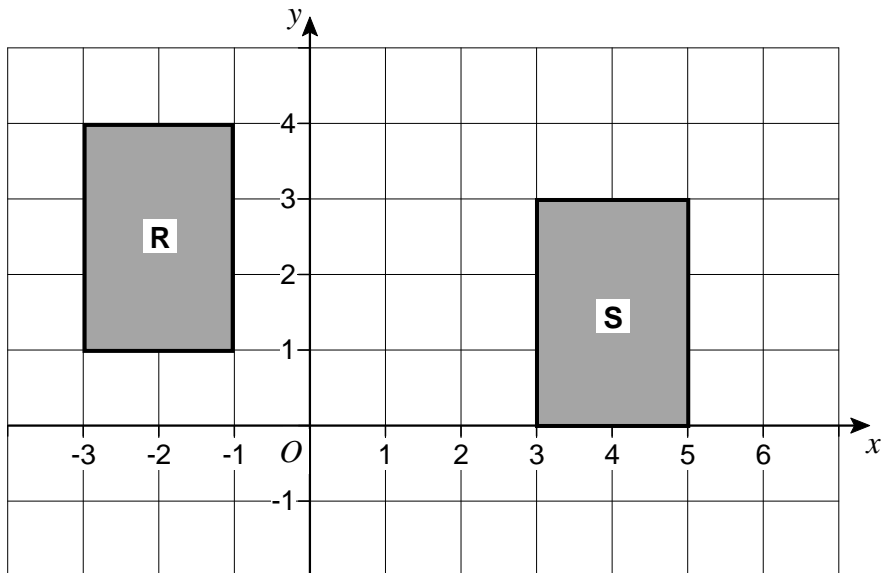
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Answer \_\_\_\_\_

16



Circle the vector that translates shape **R** to shape **S**.

[1 mark]

$$\begin{pmatrix} 1 \\ -6 \end{pmatrix}$$

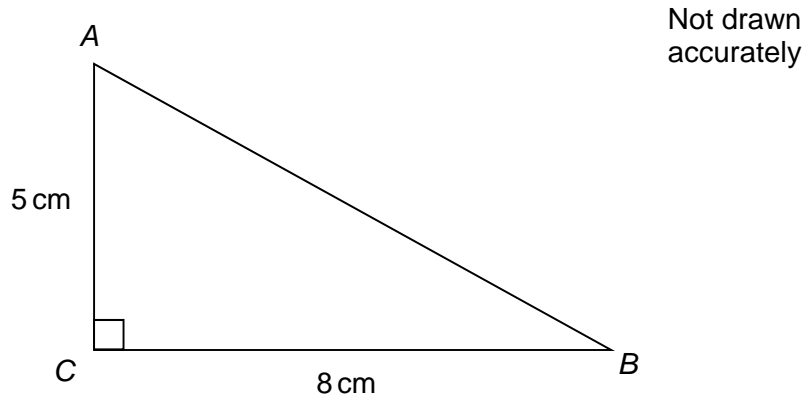
$$\begin{pmatrix} 6 \\ -1 \end{pmatrix}$$

$$\begin{pmatrix} -1 \\ 6 \end{pmatrix}$$

$$\begin{pmatrix} -6 \\ 1 \end{pmatrix}$$

Turn over for the next question

17



How long is side  $AB$ ?

Tick a box.

[1 mark]

Between 5 cm and 8 cm

8 cm

Between 8 cm and 13 cm

More than 13 cm

18

I am thinking of a prime number.

Its digits add up to a square number.

Write down a prime number that I could be thinking of.

[2 marks]

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Answer \_\_\_\_\_

19 Toilet rolls come in packs of 4 and 9



£1.89



£3.99

Which pack is better value?

You **must** show your working.

[3 marks]

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Answer \_\_\_\_\_

**Turn over for the next question**

**20** Increase 4200 by 38%

**[2 marks]**

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Answer \_\_\_\_\_

**21** The table shows information about journeys A and B.

Complete the table.

**[2 marks]**

	<b>Distance travelled</b>	<b>Time taken</b>	<b>Average speed</b>
<b>A</b>	32 miles		64 mph
<b>B</b>		1 hour 20 minutes	42 mph



22

50 people took a test.

Before the test, they predicted whether they would pass or fail.

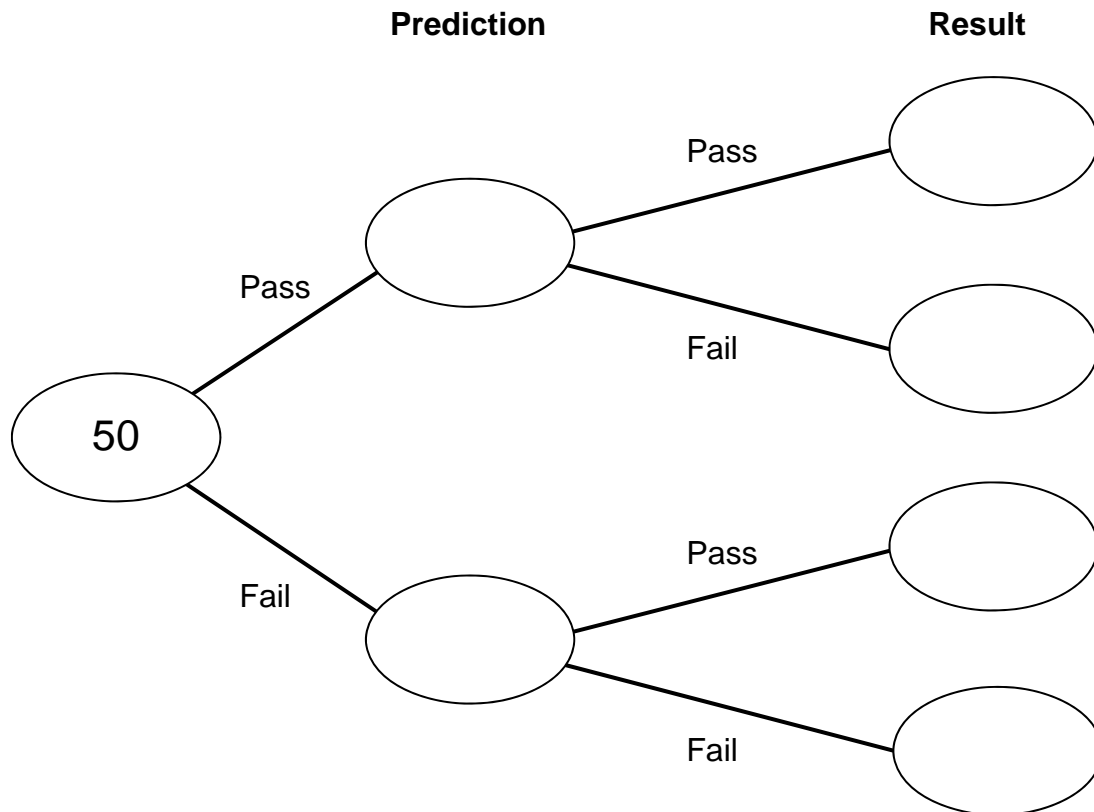
30 people predicted they would pass.

26 of the people who predicted they would pass did pass.

37 people passed altogether.

Complete the frequency tree.

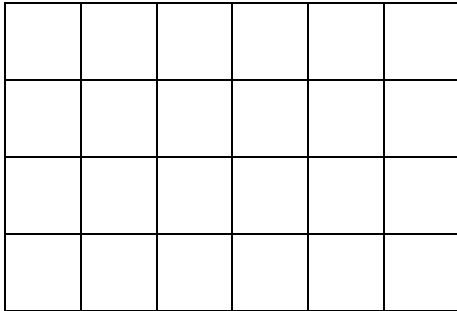
[2 marks]



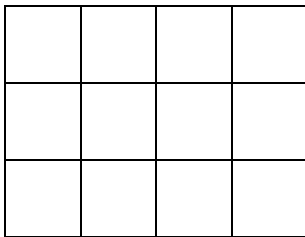
Turn over for the next question

**23** A solid cuboid is made from **centimetre cubes**.

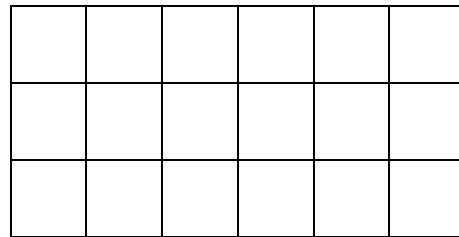
The plan view, front elevation and side elevation are shown.



Plan view



Front elevation



Side elevation

How many centimetre cubes were used to make the cuboid?

**[2 marks]**

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Answer \_\_\_\_\_

- 24** The times that 80 customers waited at a supermarket checkout are shown.

Time, $t$ (minutes)	Frequency
$0 \leq t < 2$	32
$2 \leq t < 4$	19
$4 \leq t < 6$	20
$6 \leq t < 8$	7
$8 \leq t < 10$	2

- 24 (a)** In which class interval is the median?

Circle your answer.

[1 mark]

$0 \leq t < 2$

$2 \leq t < 4$

$4 \leq t < 6$

$6 \leq t < 8$

- 24 (b)** The manager of the supermarket says,

“90% of our customers wait less than 6 minutes.”

Does the data support this statement?

You **must** show your working.

[2 marks]

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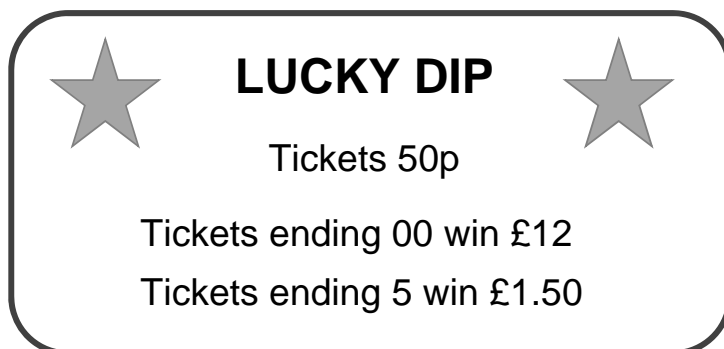
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Answer \_\_\_\_\_

25 Tomas ran a Lucky Dip stall.



There were 750 tickets, numbered 1 to 750

Tomas sold **all** the winning tickets, and **some** of the losing tickets.

He made a profit of £163

How many **losing** tickets did he sell?

[6 marks]

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Answer \_\_\_\_\_

**26** Here are two column vectors.

$$\mathbf{f} = \begin{pmatrix} 4 \\ 5 \end{pmatrix} \quad \mathbf{g} = \begin{pmatrix} 5 \\ -2 \end{pmatrix}$$

Work out  $3\mathbf{f} - 2\mathbf{g}$

**[2 marks]**

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Answer \_\_\_\_\_

**Turn over for the next question**

**27** Write 280 as a product of its prime factors.

**[2 marks]**

Answer \_\_\_\_\_

**28** Expand and simplify  $(y + 5)(y - 4)$

**[2 marks]**

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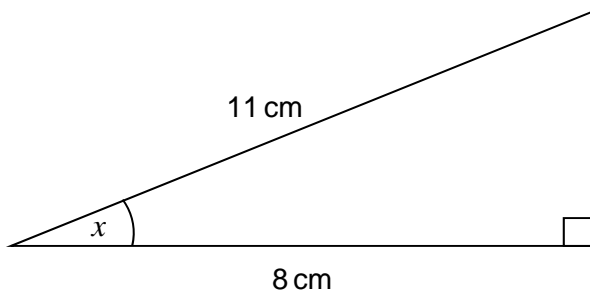
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Answer \_\_\_\_\_

- 29 (a) Work out the size of angle  $x$ .

Not drawn accurately



[2 marks]

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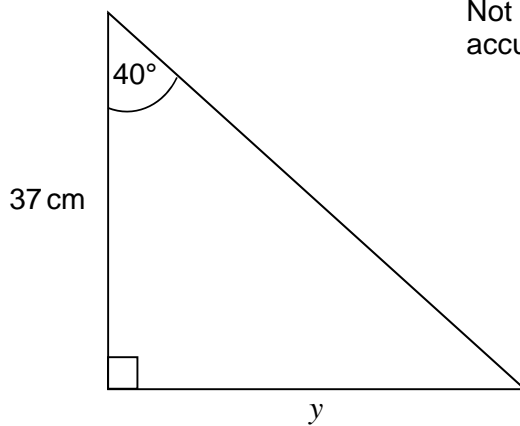


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Answer \_\_\_\_\_ degrees

- 29 (b) Work out length  $y$ .

Not drawn accurately



[2 marks]

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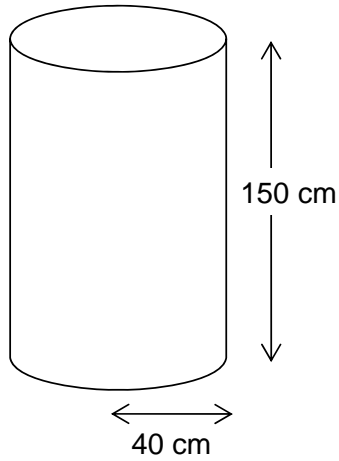
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Answer \_\_\_\_\_ cm

- 30 A water tank is a cylinder with radius 40 cm and depth 150 cm



It is filled at the rate of 0.2 litres per second.

1 litre = 1000 cm<sup>3</sup>

Does it take longer than 1 hour to fill the tank?

You **must** show your working.

**[4 marks]**

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Answer \_\_\_\_\_



- 31** The value of a second-hand car is £8000  
Each year it loses 20% of its value at the start of that year.  
Work out its value in 5 years time.

**[3 marks]**

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Answer £ \_\_\_\_\_

**END OF QUESTIONS**

**There are no questions printed on this page**

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