

GCSE Mathematics Specification (8300/2F)

Paper 2 Foundation tier

F

Date

Morning

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.
- Fill in the boxes at the bottom of this page.
- Answer **all** questions.
- You must answer the questions in the space 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 that you do not want to be marked.
- In all calculations, show clearly how you work out your answer.

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 booklet.

Please write clearly, in block capitals, to allow character computer recognition.

Centre number

Candidate number

Surname

Forename(s)

Candidate signature _____

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 $3x = 36$

Circle your answer.

[1 mark]

$x = 6$

$x = 12$

$x = 33$

$x = 108$

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]

Answer _____

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.

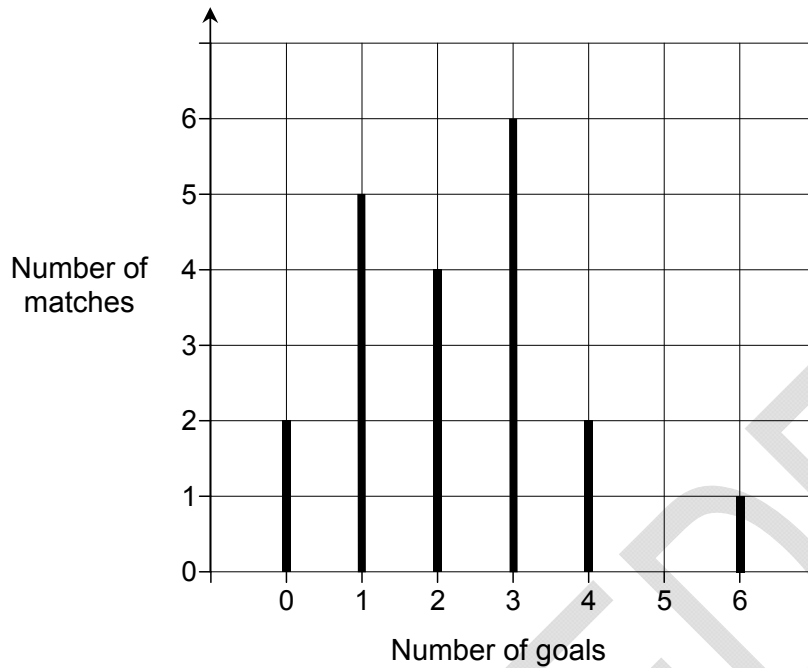
She has 3 breakfasts and 1 evening meal.

How much does she pay altogether?

[4 marks]

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]

Answer _____

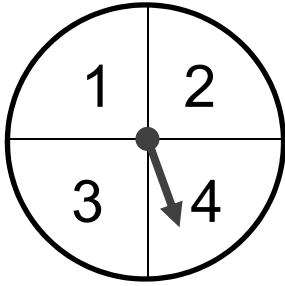
- 7 (c) In one of the matches, this team won by 5 goals.

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]

- 9 A drink is mixed in the ratio

lemonade : orange : cranberry = 6 : 3 : 2

What fraction is orange?

Circle your answer.

[1 mark]

$\frac{3}{8}$

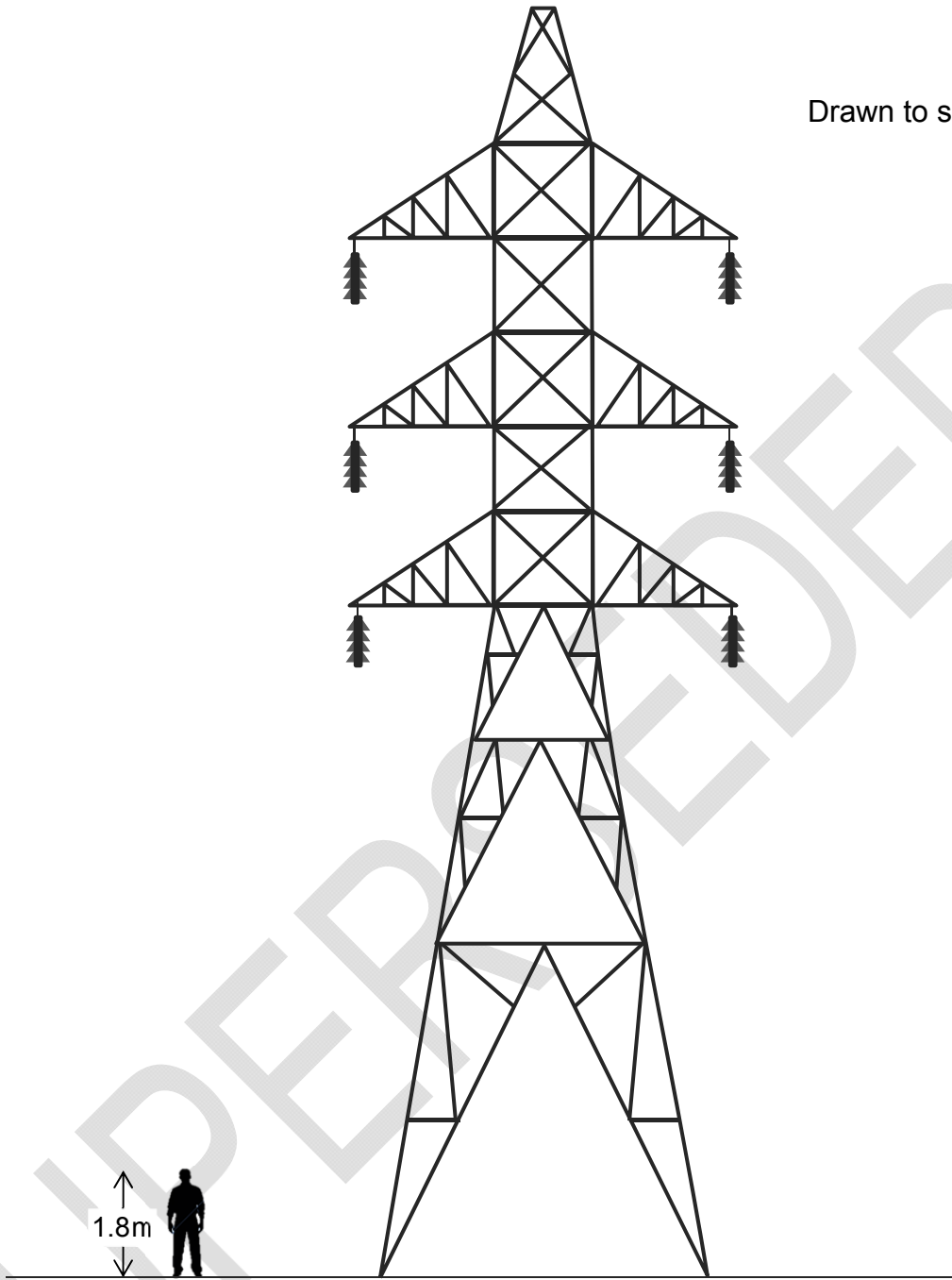
$\frac{2}{11}$

$\frac{3}{11}$

$\frac{6}{11}$

10

Drawn to scale



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

[2 marks]

Answer _____ metres

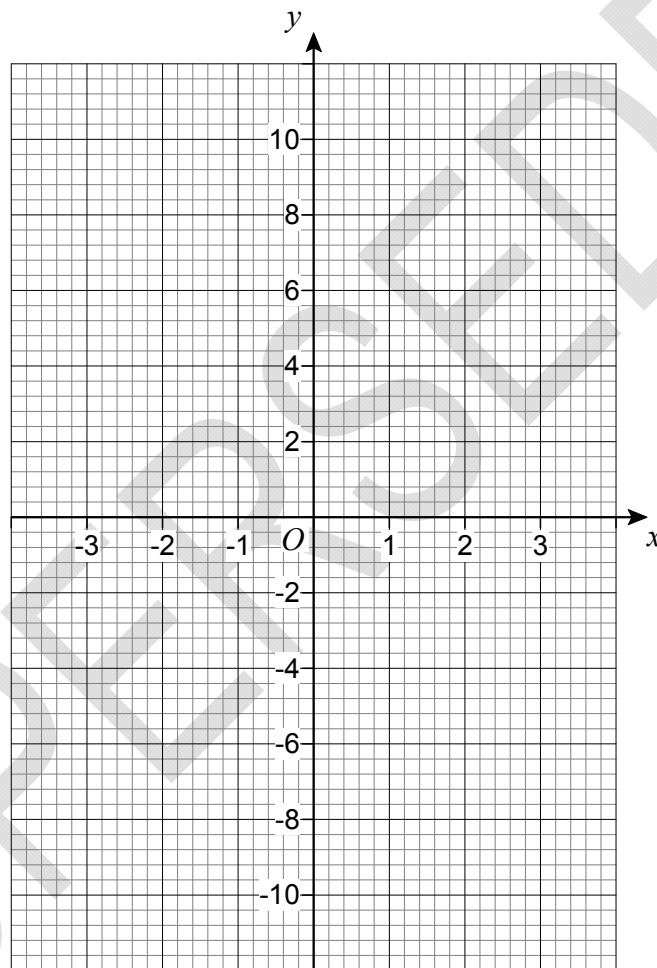
11 (a) Complete the table for $y = 3x + 1$

[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]

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

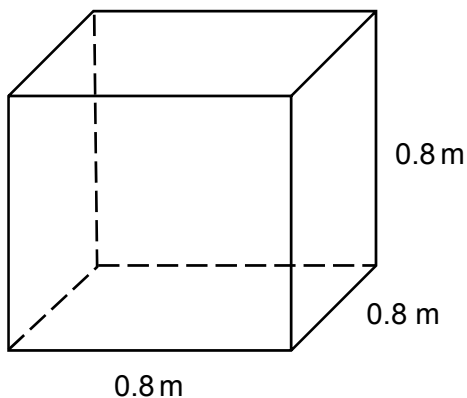
Yes

No, her yearly
pay is less

Show working to support your answer.

[2 marks]

- 13 A cube has edges of length 0.8 metres.



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

[2 marks]

Answer _____ 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]

Answer _____, _____, _____

15 Kim pays the same amount for each song she downloads.

In March she pays £35.60 for 40 songs.

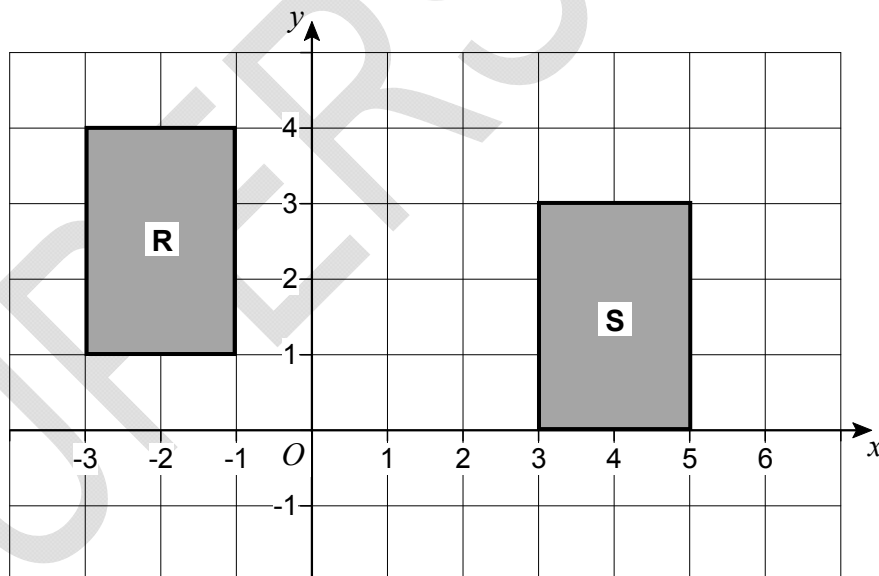
In April she pays £66.75

How many songs did she download in April?

[2 marks]

Answer _____

16



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

[1 mark]

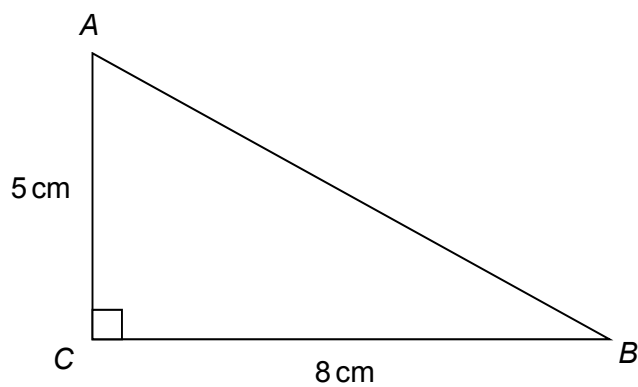
$$\begin{pmatrix} 1 \\ -6 \end{pmatrix}$$

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

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

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

17

Not drawn
accurately17 (a) 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 17 (b) Work out the area of triangle ABC .

[1 mark]

Answer _____ cm^2

- 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]

Answer _____

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- 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]

Answer _____

Turn over for the next question

20 Increase 4200 by 38%

[2 marks]

Answer _____

21 The table shows information about journeys A and B.

Complete the table.

[2 marks]

| | Distance travelled | Time taken | Average speed |
|---|--------------------|-------------------|---------------|
| A | 32 miles | | 64 mph |
| B | | 1 hour 20 minutes | 42 mph |

22

50 people took a test.

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

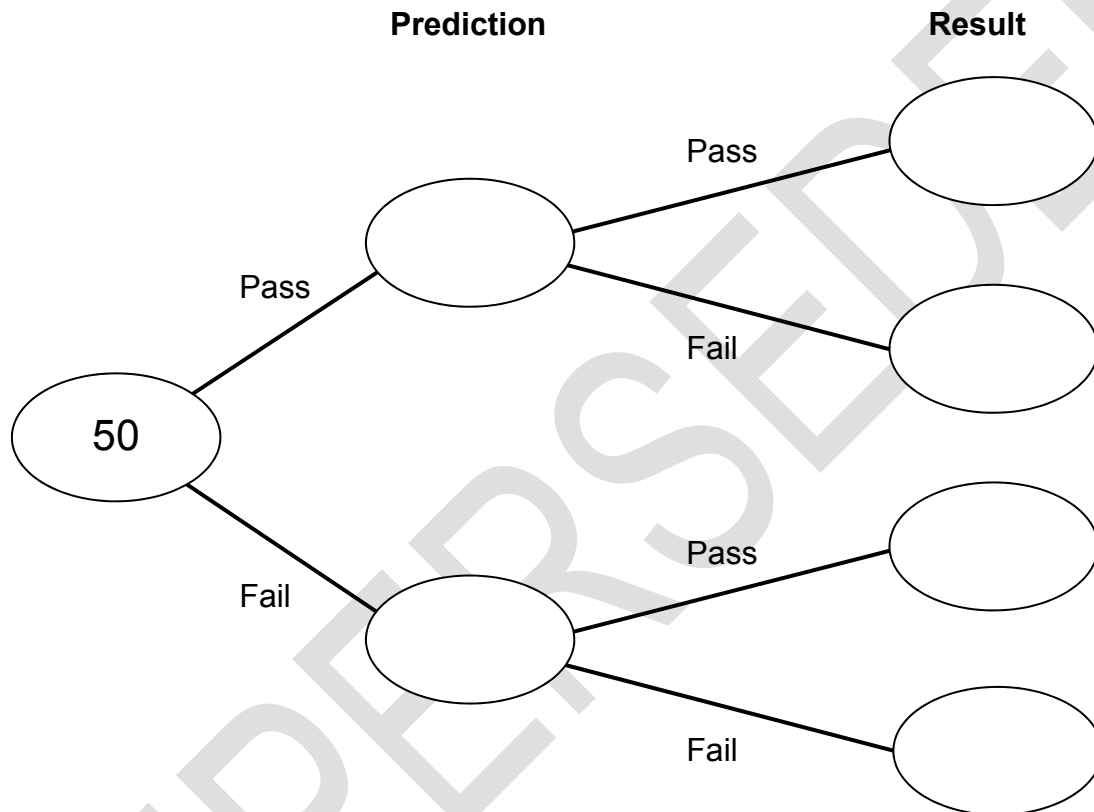
30 people predicted they would pass.

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

37 people passed altogether.

Complete the frequency tree.

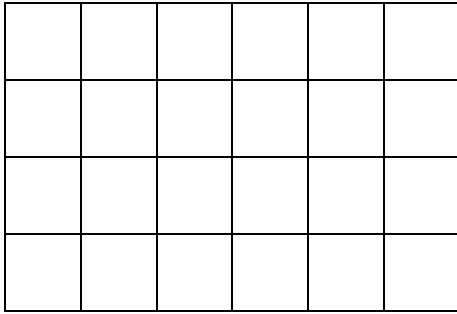
[2 marks]



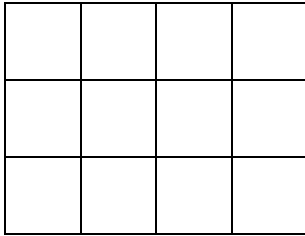
Turn over for the next question

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

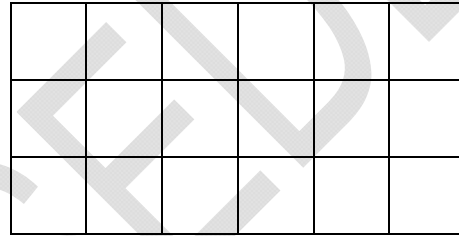
The plan view, front elevation and side elevation are shown.



Plan view



Front elevation



Side elevation

How many centimetre cubes were used to make the cuboid?

[2 marks]

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]

Answer _____

25 Tomas ran a Lucky Dip stall.

★ **LUCKY DIP** ★

Tickets 50p

Tickets ending 00 win £12

Tickets ending 5 win £1.50

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]

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]

Answer _____

Turn over for the next question

27 Write 280 as a product of its prime factors.

[2 marks]

Answer _____

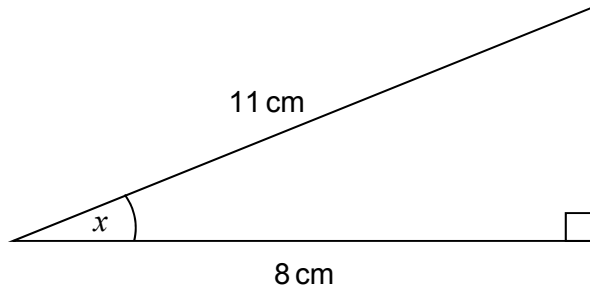
28 Expand and simplify $(y + 5)(y - 4)$

[2 marks]

Answer _____

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

Not drawn accurately

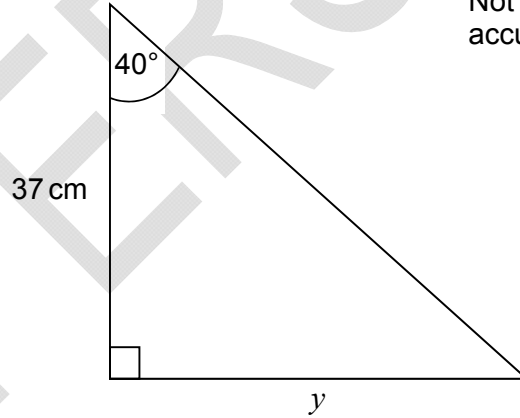


[2 marks]

Answer _____ degrees

29 (b) Work out length y .

Not drawn accurately

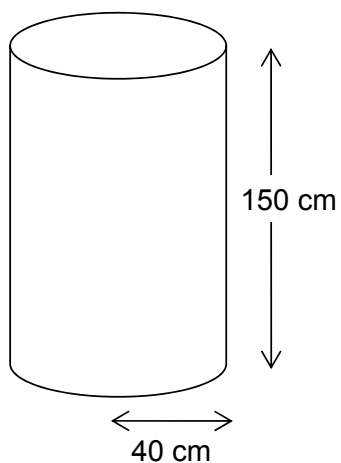


[2 marks]

Answer _____ cm

30

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



Not drawn
accurately

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

1 litre = 1000 cm³

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

You **must** show your working.

[4 marks]

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]

Answer £ _____

END OF QUESTIONS.

There are no questions printed on this page

**DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED**

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