



1 Put one pair of brackets into this equation to make it correct.

$$3 + 5 \times 4 - 2 = 13$$

[1]

2  $\mathbf{p} = \begin{pmatrix} 3 \\ -2 \end{pmatrix}$       $\mathbf{q} = \begin{pmatrix} -1 \\ 4 \end{pmatrix}$

Work out  $\mathbf{p} + \mathbf{q}$ .

*Answer*  $\begin{pmatrix} \phantom{0} \\ \phantom{0} \end{pmatrix}$  [1]

3 Zingon make light bulbs.

The probability that a Zingon light bulb is faulty is  $\frac{1}{20}$ .

Gina tests 240 of these light bulbs.

How many of them would she expect to be faulty?

*Answer* ..... [1]

4 The pictogram shows information about the numbers of different drinks sold in a café in one hour.

|               |  |
|---------------|--|
| Coffee        |  |
| Tea           |  |
| Hot chocolate |  |
| Juice         |  |

Key: represents 4 cups

(a) In this hour, 14 cups of hot chocolate were sold.  
Complete the pictogram using this information. [1]

(b) How many more cups of coffee than cups of tea were sold?

*Answer(b)* ..... [1]

5 Write the following in order of size, smallest first.

19%       $\frac{1}{5}$        $\sqrt{0.038}$        $\sin 11.4^\circ$        $0.719^5$

Answer ..... < ..... < ..... < ..... < ..... [2]

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6 Use a calculator to work out the following.

(a)  $3(-4 \times 6^2 - 5)$

Answer(a) ..... [1]

(b)  $\sqrt{3} \times \tan 30^\circ + \sqrt{2} \times \sin 45^\circ$

Answer(b) ..... [1]

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7 Find the circumference of a circle of radius 2.5 cm.

Answer ..... cm [2]

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8 Bruce plays a game of golf.  
His scores for each of the 18 holes are shown below.

|   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|
| 2 | 3 | 4 | 5 | 4 | 6 | 2 | 3 | 4 |
| 4 | 5 | 3 | 4 | 3 | 5 | 4 | 4 | 4 |

The information is to be shown in a pie chart.

Calculate the sector angle for the score of 4.

Answer ..... [2]

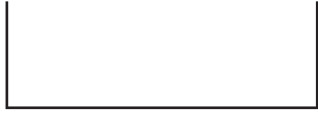
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9 (a) Add **one** line to the diagram so that it has two lines of symmetry.



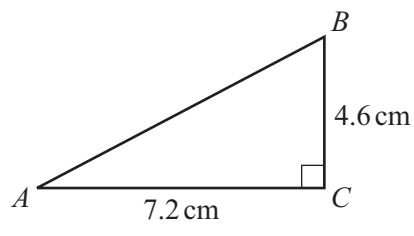
[1]

(b) Add **two** lines to the diagram so that it has rotational symmetry of order 2.



[1]

10



NOT TO SCALE

Calculate *AB*.

Answer ..... cm [2]

- 11 The table shows how the dollar to euro conversion rate changed during one day.

|      |         |         |         |         |         |         |         |
|------|---------|---------|---------|---------|---------|---------|---------|
| Time | 1000    | 1100    | 1200    | 1300    | 1400    | 1500    | 1600    |
| \$1  | €1.3311 | €1.3362 | €1.3207 | €1.3199 | €1.3200 | €1.3352 | €1.3401 |

Khalil changed \$500 into euros (€).

How many more euros did Khalil receive if he changed his money at the highest rate compared to the lowest rate?

Answer € ..... [3]

- 12 Pam wins the student of the year award in New Zealand.  
She sends three photographs of the award ceremony by post to her relatives.

- one of size 13 cm by 23 cm to her uncle in Australia
- one of size 15 cm by 23 cm to her sister in China
- one of size 23 cm by 35 cm to her mother in the UK

| Maximum lengths    | Australia | Rest of the world |
|--------------------|-----------|-------------------|
| 13 cm by 23.5 cm   | \$1.90    | \$2.50            |
| 15.5 cm by 23.5 cm | \$2.40    | \$2.90            |
| 23 cm by 32.5 cm   | \$2.80    | \$3.40            |
| 26 cm by 38.5 cm   | \$3.60    | \$5.20            |

The cost of postage is shown in the table above.  
Use this information to calculate the total cost.

Answer \$ ..... [3]

- 13 (a) Complete the following statement.

The two common factors of 15 and 20 are 1 and ..... [1]

- (b) Write down the next square number that is greater than 169.

Answer(b) ..... [1]

- (c) Write down a prime number between 90 and 100.

Answer(c) ..... [1]

- 14 The straight line,  $L$ , has the equation  $y = 5 - 2x$ .

Write down

- (a) the co-ordinates of the point where the line crosses the  $y$ -axis,

Answer(a) (....., .....) [1]

- (b) the gradient of the line,

Answer(b) ..... [1]

- (c) the equation of a line parallel to  $L$ .  
Give your answer in the form  $y = mx + c$ .

Answer(c)  $y =$  ..... [1]

15  $c = 10d + 3$

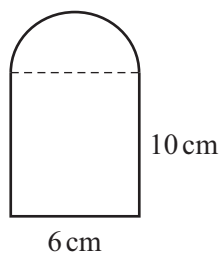
- (a) Find the value of
- $c$
- when
- $d = 2.3$
- .

*Answer(a)*  $c = \dots\dots\dots$  [1]

- (b) Make
- $d$
- the subject of the formula.

*Answer(b)*  $d = \dots\dots\dots$  [2]

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NOT TO  
SCALE

This shape is made from a rectangle and a semicircle.  
The rectangle measures 10 cm by 6 cm.

Work out the area of the shape.

*Answer*  $\dots\dots\dots$  cm<sup>2</sup> [3]

17 Solve the simultaneous equations.

$$2x + 5y = 26$$

$$4x + 3y = 24$$

Answer  $x =$  .....

$y =$  ..... [3]

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18 Simplify the following.

(a)  $x^5 \times x^2$

Answer(a) ..... [1]

(b)  $20y^4 \div 4y^{-2}$

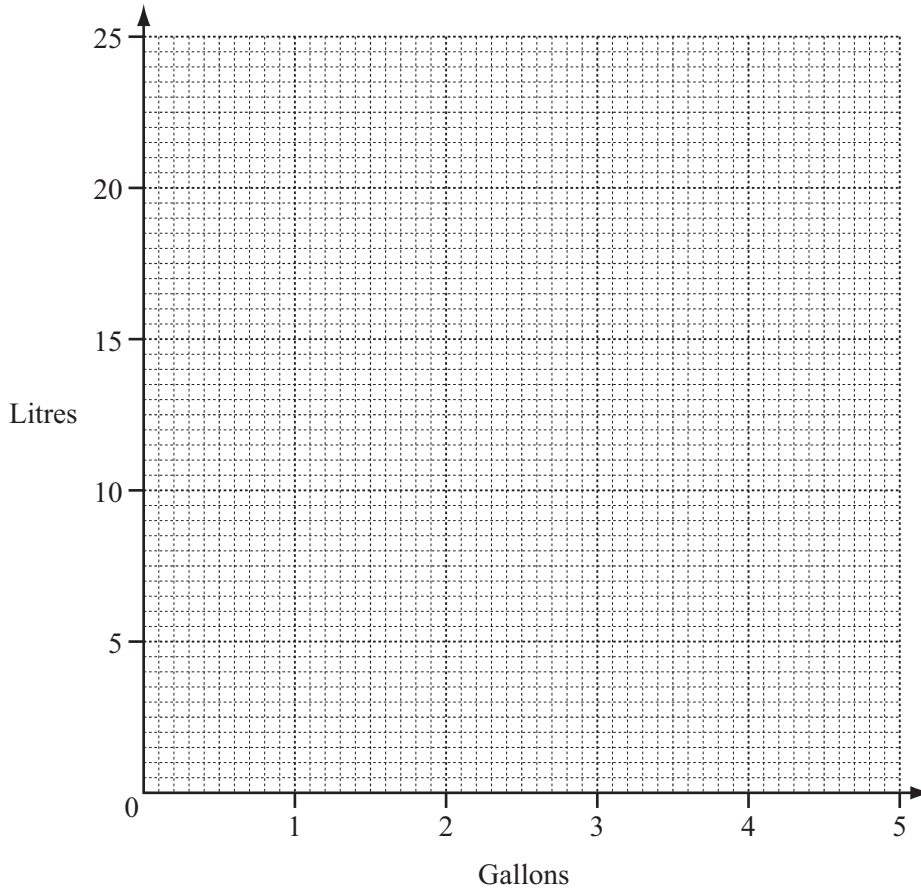
Answer(b) ..... [2]

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19 Mario says that 5 gallons = 22.5 litres.

(a) On the grid, draw a straight line to show the conversion rate that Mario uses.



[2]

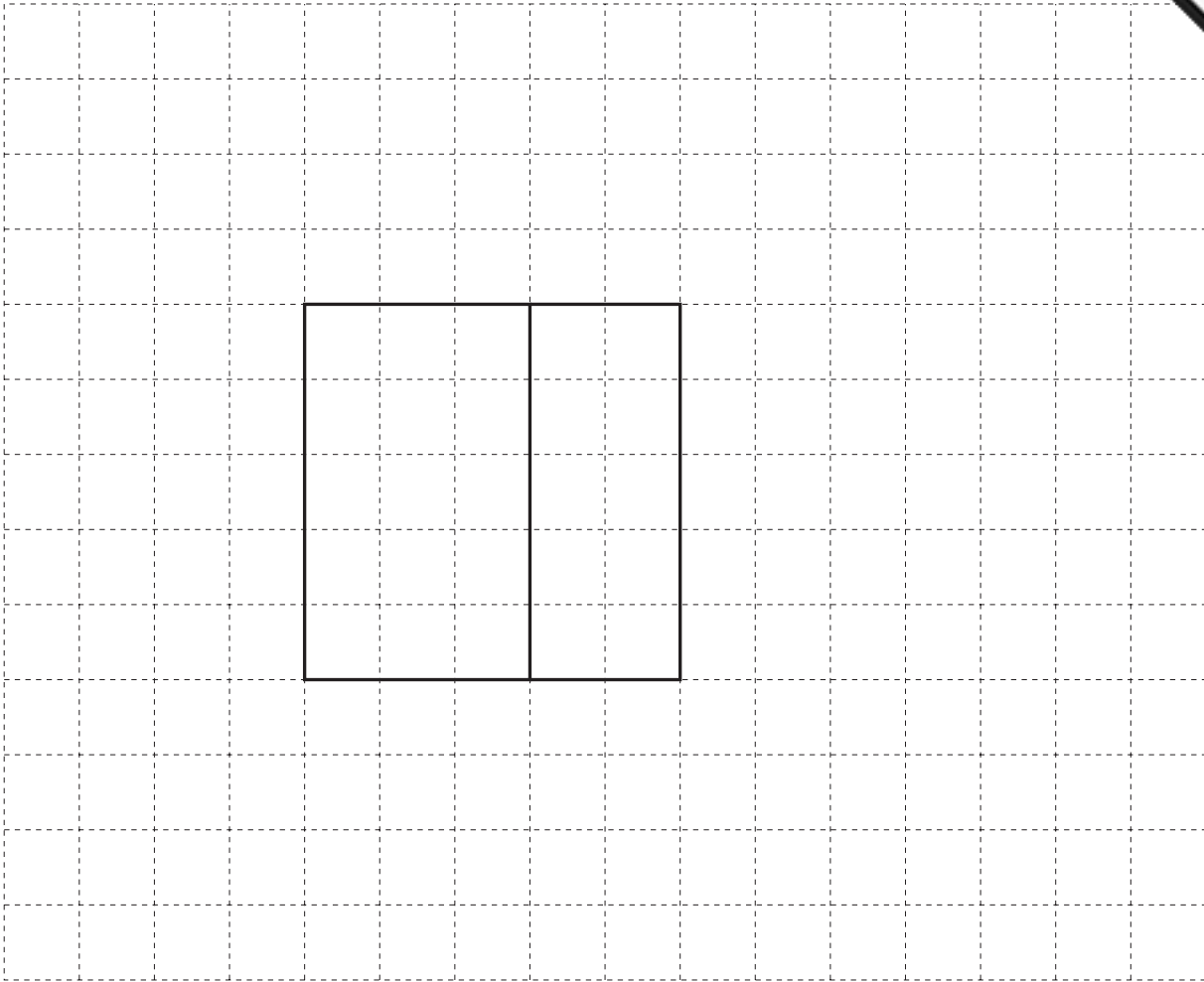
(b) Use your graph to find

(i) the number of litres equivalent to 4 gallons,

Answer(b)(i) ..... litres [1]

(ii) the number of gallons equivalent to 15 litres.

Answer(b)(ii) ..... gallons [1]

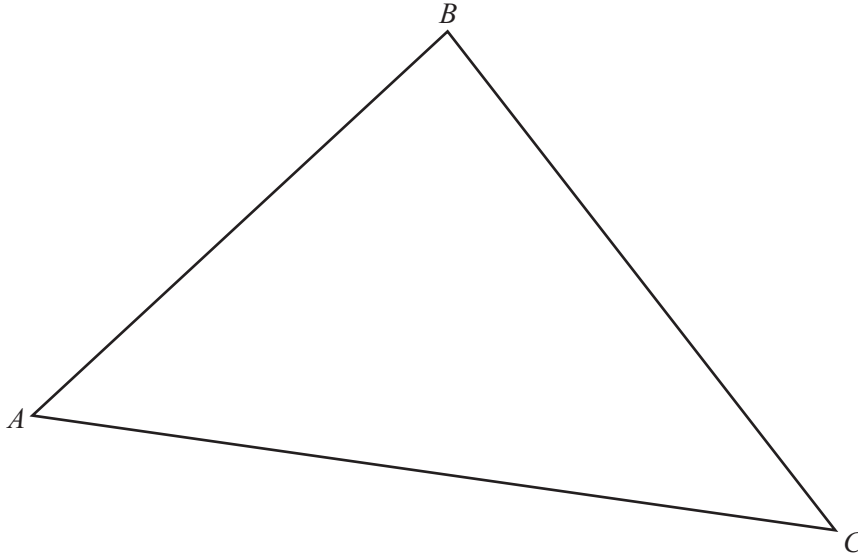


The diagram shows part of the net of a cuboid.  
It is drawn full size.

- (a) Complete the net of the cuboid. [2]
- (b) Work out the volume of the cuboid.  
Write down the units of your answer.

Answer(b) ..... [3]

- 21 Use a straight edge and compasses only for the constructions in parts (a) and (b).  
Leave in all your construction arcs.



- (a) Construct the bisector of angle  $ABC$ . [2]
- (b) Construct the perpendicular bisector of  $AB$ . [2]
- (c) Shade the region inside triangle  $ABC$  containing points that are
- less than 7 cm from  $C$
- and**
- closer to  $A$  than to  $B$ . [2]
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