

Answer ALL questions.



Write your answers in the spaces provided.

You must write down all the stages in your working.

1. Work out  $5.4 \times 0.24$

$$\begin{array}{r} 54 \\ \times 24 \\ \hline 216 \\ 1080 \\ \hline 1296 \end{array}$$

$$\underline{1.296}$$

(Total 3 marks)

2. The height,  $H$  cm, of a table is measured as 72 cm correct to the nearest centimetre.

Complete the following statement to show the range of possible values of  $H$ .

$$\underline{71.5} \leq H < \underline{72.5}$$

(Total 2 marks)

3. Jane has a carton of orange juice.  
The carton is in the shape of a cuboid.

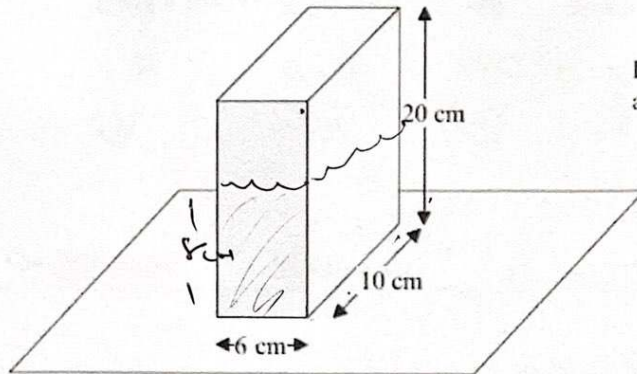
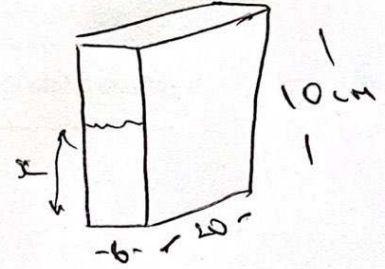


Diagram NOT accurately drawn



The depth of the orange juice in the carton is 8 cm.

Jane closes the carton.  
Then she turns the carton over so that it stands on the shaded face.

Work out the depth, in cm, of the orange juice now.

At now-

$$\begin{aligned} \text{Volume} &= \text{Area} \times \text{Depth} \\ &= (6 \times 8) \times 10 \\ &= 480 \text{ cm}^3 \end{aligned}$$

when turned,

$$\begin{aligned} \text{Volume} &= \text{Area} \times \text{Depth} \\ 480 &= (6 \times x) \times 10 \\ 480 &= (6x) \times 10 \\ 480 &= 120x \\ 4 &= x \end{aligned}$$

4 cm.

..... cm

(Total 3 marks)



4. Write the following numbers in order of size.  
Start with the smallest number.

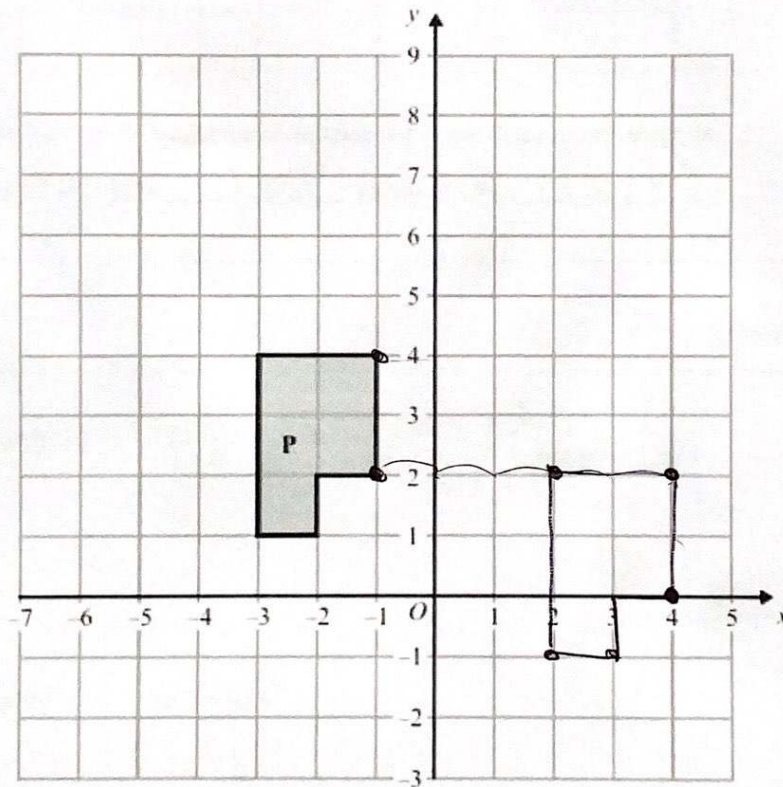


$0.038 \times 10^2$	$3800 \times 10^{-4}$	380	$0.38 \times 10^{-1}$
3.8	0.38	380	0.038
(3)	(2)	(4)	(1)

$0.038 \times 10^{-1}, 3800 \times 10^{-4}, 0.038 \times 10^2, 380$

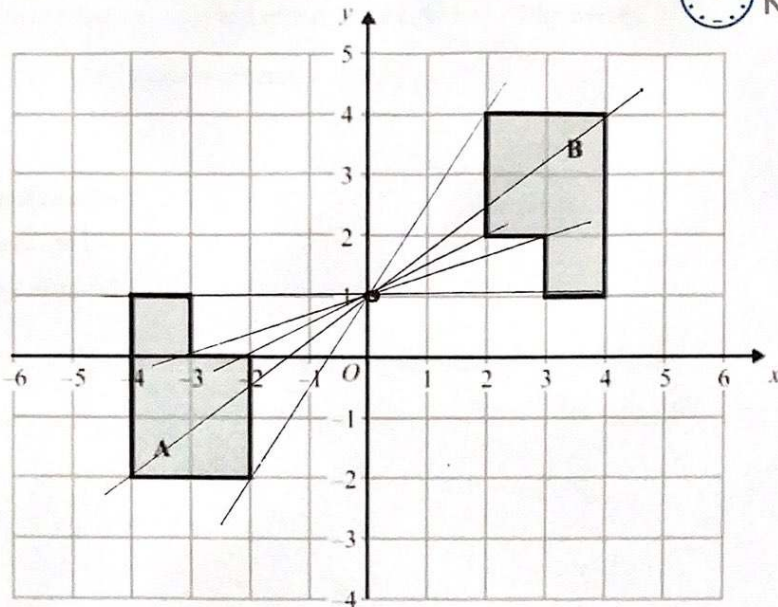
(Total 2 marks)

- 5.



- (a) Translate shape P by the vector  $\begin{pmatrix} 5 \\ -2 \end{pmatrix}$ .

(2)



(b) Describe fully the single transformation that maps shape A onto shape B.

Rotation 180° around (0, 1)

(3)

(Total 5 marks)

6. (a) Simplify  $\frac{(x+2)^2}{x+2} = \frac{(x+2)(x+2)}{(x+2)}$

$x+2$   
(1)

(b) Simplify  $2a^2b^1 \times 3a^3b^1$   
 $6a^5b^2$

$6a^5b^2$   
(2)

(Total 3 marks)



7. Talil is going to make some concrete mix.  
He needs to mix cement, sand and gravel in the ratio 1 : 3 : 5 by weight.



Talil wants to make 180 kg of concrete mix.

Talil has

15 kg of cement

85 kg of sand

100 kg of gravel

Does Talil have enough cement, sand and gravel to make the concrete mix?

	Cement	:	Sand	:	Gravel	
	1	:	3	:	5	9 kg of concrete ( $\times 10$ )
$\times 10$ (	10	:	60	:	100	180 kg of concrete

Not enough cement - needs 20kg  
has 15kg.

(Total 4 marks)

8. Suha has a full 600 ml bottle of wallpaper remover. She is going to mix some of the wallpaper remover with water.



Here is the information on the label of the bottle.

**Wallpaper remover**  
600 ml

Mix  $\frac{1}{4}$  of the wallpaper remover  
with 4500 ml of water

Suha is going to use 750 ml of water.

How many millilitres of wallpaper remover should Suha use?  
You must show your working.

$$\frac{1}{4} \text{ of } 600 = 150 \text{ ml of wallpaper remover}$$

Remover	:	water
150	:	4500
$\div 6$ ( 25	:	750 ) $\div 6$

$$\frac{4500}{750} = \frac{450}{75} = \frac{18}{3}$$

..... 25 ..... ml  
**(Total 4 marks)**

$$\begin{array}{r} 18 \\ 25 \overline{) 450} \end{array}$$