



SCAN ME

Similar Areas/Volumes

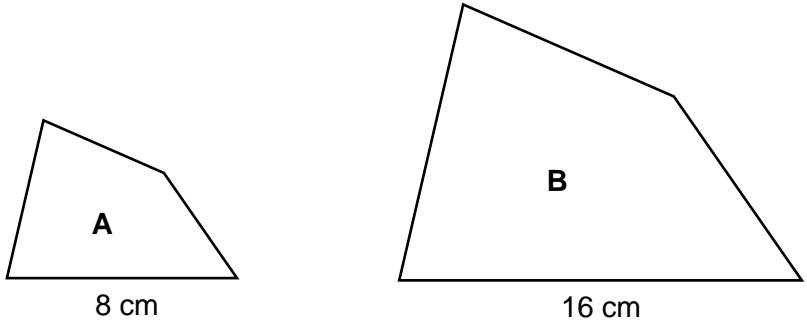


SCAN ME

← REVISE THIS TOPIC

CHECK YOUR ANSWERS →

1 Quadrilaterals **A** and **B** are similar.



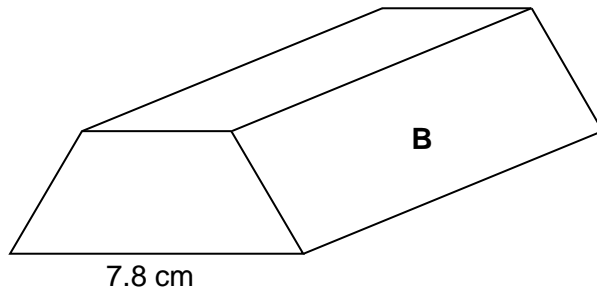
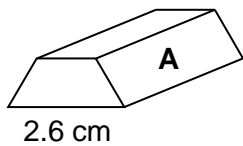
The area of quadrilateral **A** is 32 cm^2

Work out the area of quadrilateral **B**. [3 marks]

Answer _____ cm^2



2 Prisms **A** and **B** are similar.



The volume of prism **A** is 7 cm^3

Work out the volume of prism **B**.

[3 marks]

Answer _____ cm^3

3 Solids **P** and **Q** are similar.

P has a height of 10 cm and **Q** has a height of 8 cm.
The volume of **P** is 800 cm^3

Work out the volume of **Q**.

[3 marks]

Answer _____ cm^3





4 Solids **M** and **N** are similar.

Height of **M** : Height of **N** = 2 : 3

The surface area of **N** is 360 cm²

Work out the surface area of **M**.

[3 marks]

Answer _____ cm²

5 Solids **X** and **Y** are similar.

X has a volume of 24 cm³ and **Y** has a volume of 81000 cm³.

The height of **X** is 4 cm

Work out the height of **Y**.

[3 marks]

Answer _____ cm





6 Here is some information about similar solids **X**, **Y** and **Z**.

	X	Y	Z
Height	6 cm	15 cm	
Volume	240 cm ³		6480 cm ³

6 (a) Complete the table. [5 marks]

6 (b) Work out [2 marks]

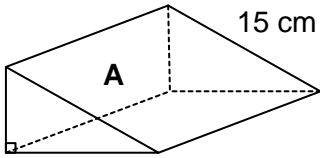
surface area of **X** : surface area of **Y** : surface area of **Z**

Give your answer in its simplest form.

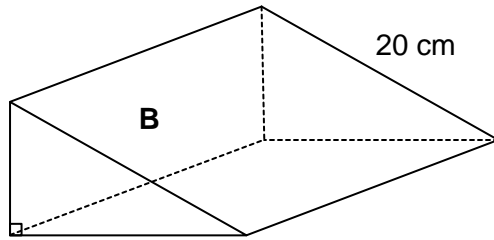
Answer _____ : _____ : _____



7 Here are triangle prisms **A** and **B**.



Surface area = 960 cm^2



Surface area = 1500 cm^2

Show that prisms **A** and **B** are **not** similar.

[3 marks]

8 Solids **G** and **H** are similar.

G has a surface area of 3430 cm^2 and **H** has a surface area of 280 cm^2 .
The height of **G** is 84 cm

Work out the height of **H**.

[3 marks]

Answer _____ cm





9 Solids **C** and **D** are similar.

C has a volume of 40 cm^3 and **D** has a volume of 1080 cm^3 .
The surface area of **C** is 100 cm^2

Work out the surface area of **D**.

[3 marks]

Answer _____ cm^2

10 Solids **U** and **V** are similar.

U has a surface area of 375 cm^2 and **V** has a surface area of 540 cm^2 .
The volume of **V** is 432 cm^3

Work out the volume of **U**.

[3 marks]

Answer _____ cm^3





11 Solids **M** and **N** are similar.

$$\text{volume of M} : \text{volume of N} = 1000 : 1$$

The surface area of **M** is 80 cm^2

Work out the surface area of **N**.

[3 marks]

Answer _____ cm^2

12 Solids **A**, **B** and **C** are similar.

$$\text{surface area of Solid A} : \text{surface area of Solid B} = 4 : 25$$

$$\text{volume of Solid A} : \text{volume of solid C} = 64 : 729$$

$$\text{height of Solid A} : \text{height of Solid B} : \text{height of Solid C} = p : q : r$$

where p , q and r are integers in their simplest form.

Work out the values of p , q and r .

[3 marks]

$p =$ _____ $q =$ _____ $r =$ _____

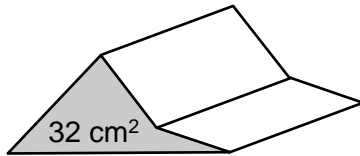
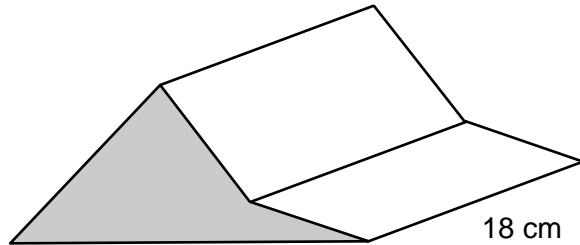
12

Turn over ►



13

Prisms **A** and **B** are similar.
The cross sections are shaded.

Prism **A**Prism **B**

The area of the cross section of prism **A** is 32 cm^2
The length of prism **B** is 18 cm .

$$\text{volume of prism A} : \text{volume of prism B} = 8 : 27$$

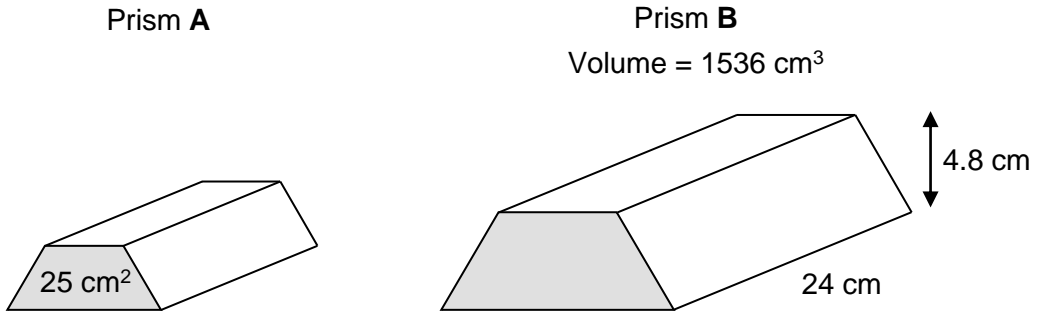
Work out the volume of prism **B**.

[4 marks]

Answer _____ cm^3



- 14 Prisms **A** and **B** are similar.
The cross sections are shaded.



Here is some information about the prisms.

	Length	Height	Cross Section Area	Volume
Prism A			25 cm ²	
Prism B	24 cm	4.8 cm		1536 cm ³

Work out the height of prism **A**.

[4 marks]

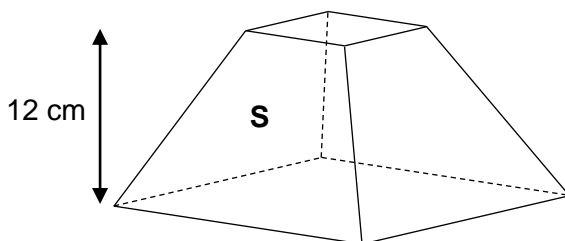
Answer _____ cm

$\frac{\quad}{8}$

Turn over ►



16 Solid **S** is shown below.



Two of the faces of Solid **S** are squares with areas of 36 cm^2 and 225 cm^2 .
Four of the faces of Solid **S** are trapeziums.

The vertical height of Solid **S** is 12 cm.

Solid **T** is similar to Solid **S**.

The area of one of the square faces of Solid **T** is 100 cm^2

Work out two possible values for the vertical height of Solid **T**. [4 marks]

Answers _____ cm and _____ cm

8

Turn over ►



17 Solids **X**, **Y** and **Z** are similar.



volume of **X** : volume of **Y** = 1 : 8

surface area of **Y** : surface area of **Z** = 9 : 20

height of **X** : height of **Y** : height of **Z** = $a : b : c\sqrt{5}$

where a , b and c are integers.

Work out the values of a , b and c .

[4 marks]

$a =$ _____ $b =$ _____ $c =$ _____

$\frac{1}{4}$

