

CONGRUENCY AND SIMILARITY – IGCSE MATHS

NAME _____

Question 1

Here are three similar quadrilaterals.

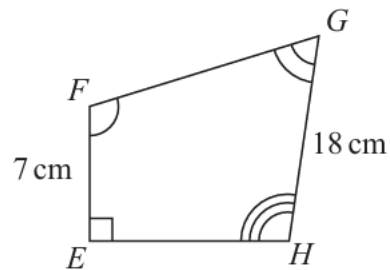
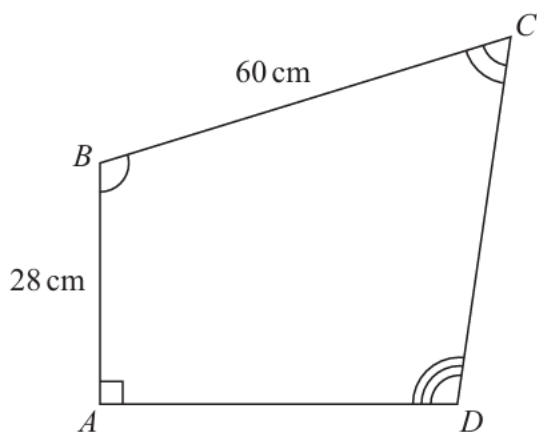
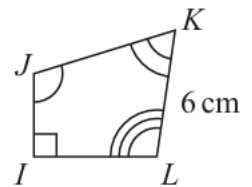


Diagram **NOT** accurately drawn



Work out the length of JK

Question 2

Shape **P** is similar to shape **Q**

The table shows some information about shape **P** and shape **Q**

	Surface area (cm ²)	Volume (cm ³)
Shape P	200	672
Shape Q	450	

Work out the volume of shape **Q**

..... cm³ **[3]**

Question 3

A and **B** are two similar solids.

The height of solid **A** is 31 cm

The height of solid **B** is 18.6 cm

Given that

$$\text{volume of solid A} - \text{volume of solid B} = 735 \text{ cm}^3$$

find the volume of solid **A**

[4]

Question 4

The diagram shows two similar quadrilaterals, $ABCD$ and $EFGH$

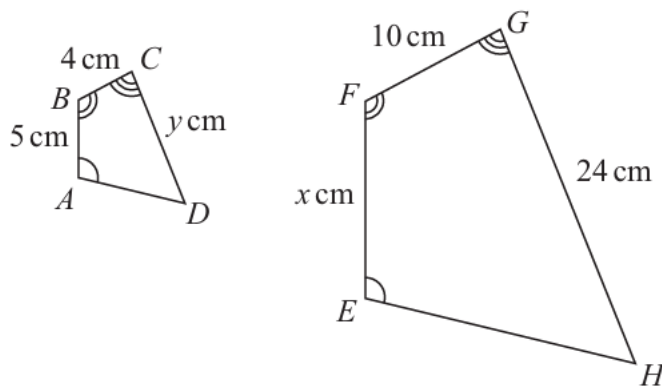


Diagram **NOT**
accurately drawn

$$AB = 5 \text{ cm} \quad BC = 4 \text{ cm} \quad CD = y \text{ cm}$$

$$EF = x \text{ cm} \quad FG = 10 \text{ cm} \quad GH = 24 \text{ cm}$$

(a) Work out the value of x

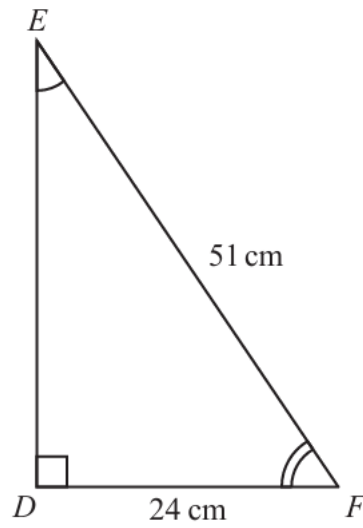
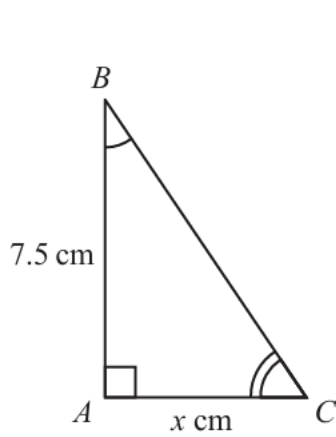
$$x = \dots\dots\dots (2)$$

(b) Work out the value of y

$$y = \dots\dots\dots (2)$$

Question 5

Here are two similar triangles.



Diagrams **NOT**
accurately drawn

Work out the value of x
Show your working clearly.

.....**[5]**

Question 6

Solid **A** is similar to solid **B**

Here is some information about solid **A** and solid **B**

	solid A	solid B
Height (cm)	3^x	
Area (cm ²)	7776	486
Volume (cm ³)	8^x	2^{x+4}

Work out the height of solid **B**
Give your answer as a decimal.

..... cm **[5]**

Question 7

Here is a shape formed from two triangles ABC and CDE
 ACD and BCE are straight lines.

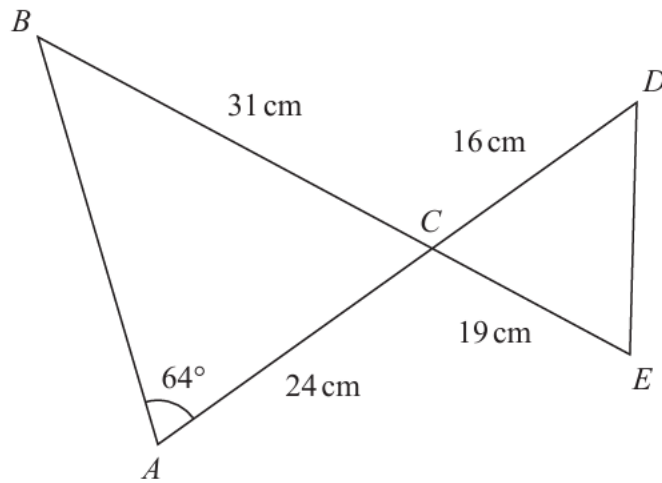


Diagram **NOT**
accurately drawn

$$AC = 24 \text{ cm} \quad BC = 31 \text{ cm} \quad CE = 19 \text{ cm} \quad CD = 16 \text{ cm}$$

$$\text{Angle } BAC = 64^\circ$$

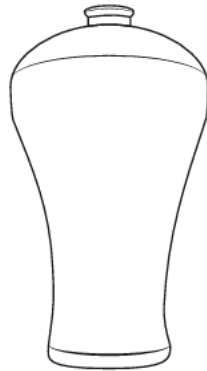
Work out the length of DE

Give your answer correct to 3 significant figures.

..... cm **[5]**

Question 8

A and B are two similar vases.



A



B

Diagram **NOT**
accurately drawn

The vases are such that

$$\text{surface area of vase B} = \frac{25}{64} \times \text{surface area of vase A}$$

and that

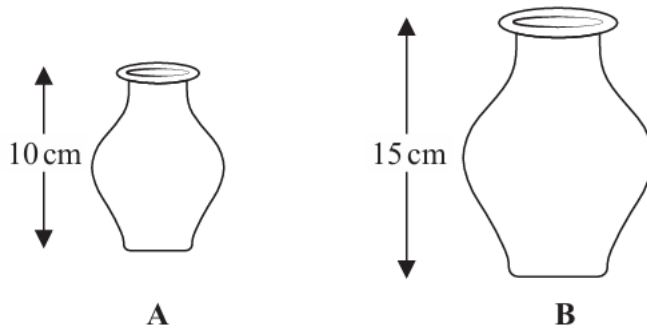
$$\text{volume of vase A} - \text{volume of vase B} = 541.8 \text{ cm}^3$$

Calculate the volume of vase **B**

..... cm³ **[4]**

Question 9

A and B are two similar vases.



Vase A has height 10 cm.

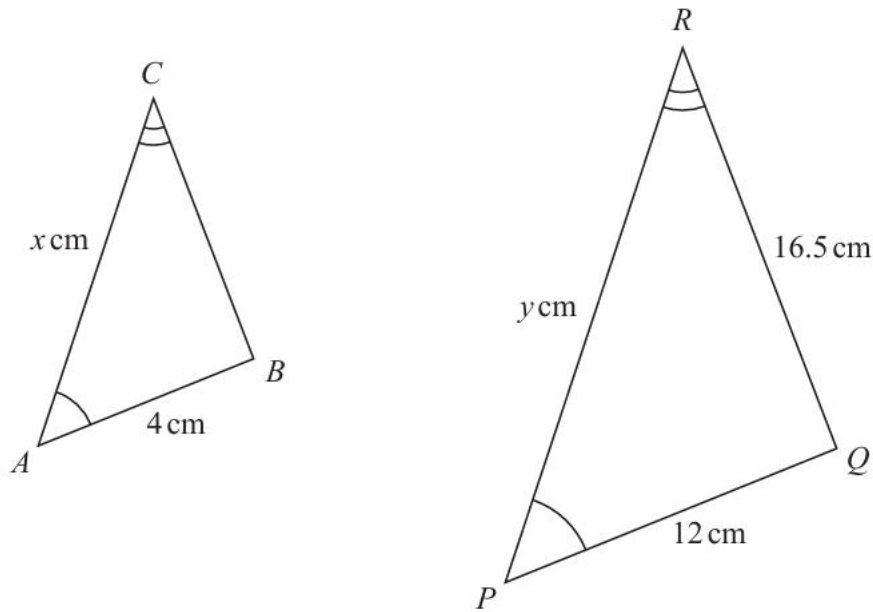
Vase B has height 15 cm.

The difference between the volume of vase A and the volume of vase B is 1197 cm^3

Calculate the volume of vase A

..... cm^3 **[4]**

Question 10



Triangle ABC is similar to triangle PQR

$$AB = 4 \text{ cm} \quad PQ = 12 \text{ cm} \quad RQ = 16.5 \text{ cm} \quad AC = x \text{ cm} \quad PR = y \text{ cm}$$

(a) Calculate the length of BC

..... cm
(2)

(b) Write down an expression for y in terms of x

$y =$
(1)

