

## Non-Calculator

**Q1.**

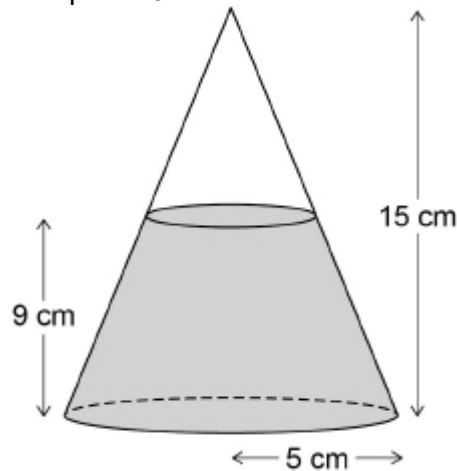
Volume of cone =  $\frac{1}{3}\pi r^2 h$  where  $r$  is the radius and  $h$  is the perpendicular height.

A cone has a

horizontal base of radius 5 cm

height of 15 cm

The cone contains water to a depth of 9 cm



Work out the volume of the water, in  $\text{cm}^3$

Give your answer in terms of  $\pi$ .

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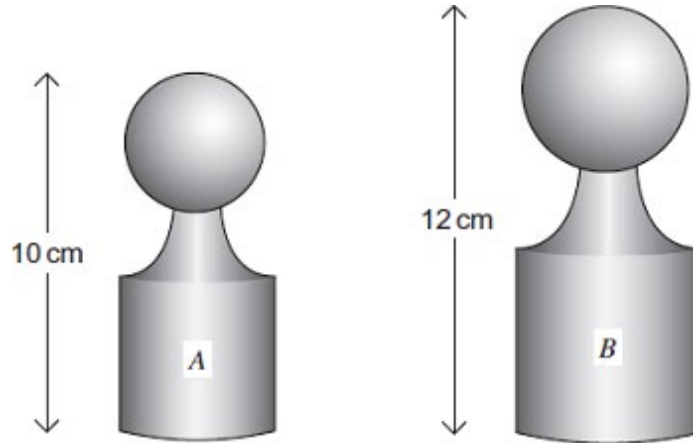
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Answer \_\_\_\_\_  $\text{cm}^3$   
(Total 4 marks)

## Calculator

**Q2.**

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



The volume of  $A$  is  $500 \text{ cm}^3$ .

Work out the volume of  $B$ .

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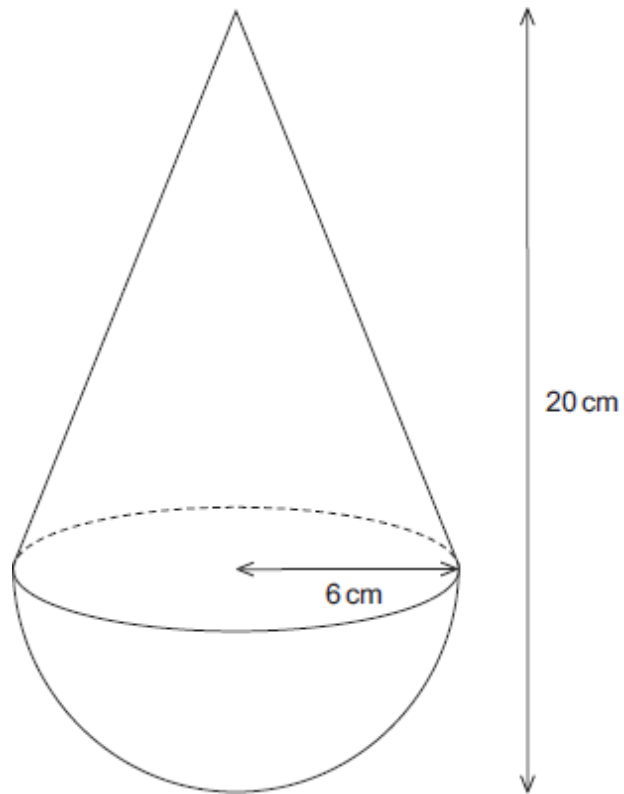
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Answer \_\_\_\_\_  $\text{cm}^3$   
(Total 3 marks)

**Q3.**

A small toy is made by joining a solid cone and a solid hemisphere together. The cone and hemisphere each have radius 6 cm.



- (a) Show that the volume of the toy is  $312\pi \text{ cm}^3$ .

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(4)

- (b) A larger version of the toy is made that has
- dimensions twice the size of the small toy
  - mass 1.5 kilograms.

The toy is made from foam.

Work out the density of the foam.  
Give your answer in grams per cubic centimetre.

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Answer \_\_\_\_\_ g per cm<sup>3</sup>

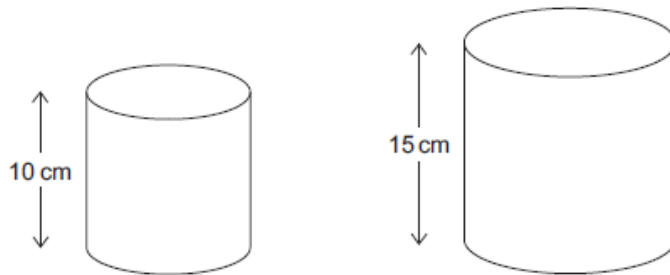
(4)

(Total 8 marks)

**Q4.**

A solid cylinder has a volume of 454 cm<sup>3</sup>.  
The cylinder has a height of 10 cm.

A similar cylinder has a height of 15 cm.



What is the volume of the larger cylinder?

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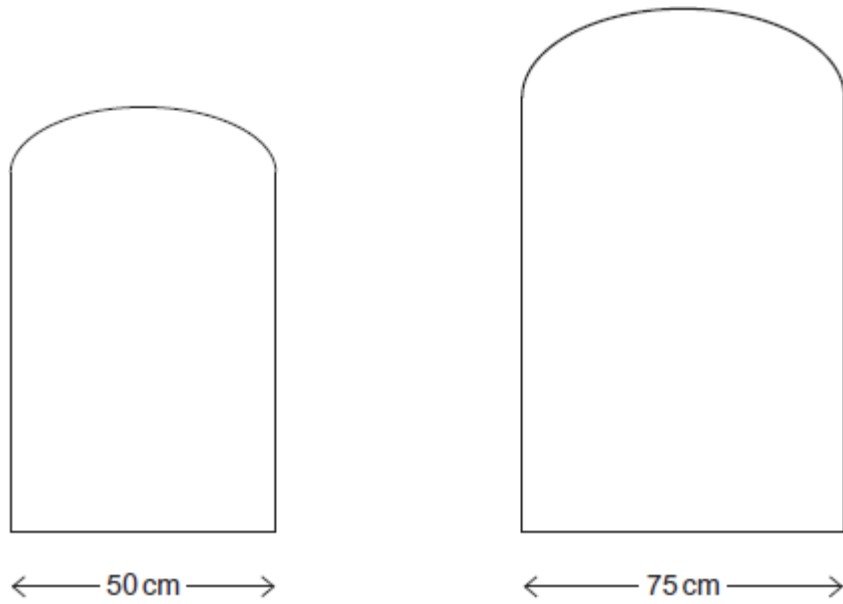
Answer \_\_\_\_\_ cm<sup>3</sup>

(Total 3 marks)

**Q5.**

The diagram shows two pieces of glass.

Not drawn accurately



The pieces are similar.  
The area of the small piece is  $6000 \text{ cm}^2$

Glass costs £80 per square metre.

Work out the cost of the large piece.

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Answer £ \_\_\_\_\_

**(Total 5 marks)**

**Q6.**

These two solid shapes are similar.

Not drawn accurately



The volume of A is  $1400 \text{ cm}^3$

Work out the volume of B.

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Answer \_\_\_\_\_  $\text{cm}^3$   
(Total 3 marks)