

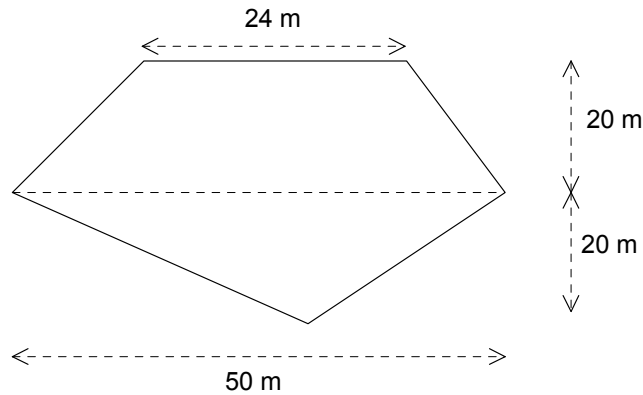
## GCSE Area and Volume 2: Assessment A

Your Name: ..... Tutor Group: .....

End of GCSE target grade: ..... Assessment grade: .....

Grade D objectives	☺	☹	☹
• I can find the area of a triangle and of shapes made from rectangles and triangles.			
• I can use the formulae for the area and circumference of a circle.			
• I can find the area of a trapezium and the area of a parallelogram.			

1. Work out the area of the shape shown below. It is formed from a trapezium and a triangle.



Area = .....m<sup>2</sup> [4]

2. A circular plate has a circumference of 72 cm.  
Calculate the diameter of the plate.

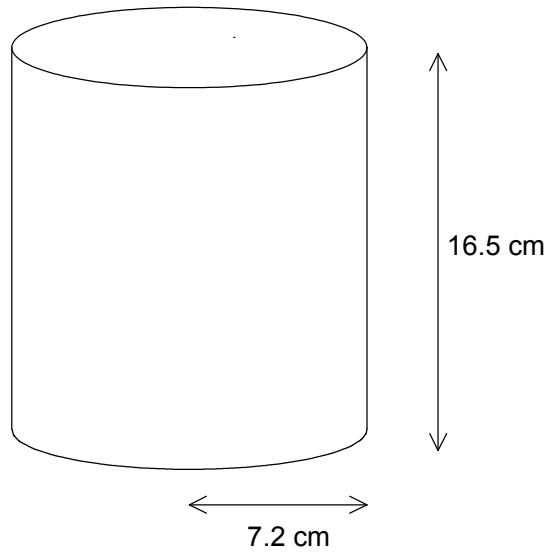
Diameter = ..... [3]

Grade C objectives	☺	☹	☹
• I can solve problems involving area and circumference of circles.			
• I can find the volume of a prism (including cylinders).			
• I can change between cm <sup>2</sup> and m <sup>2</sup> and between cm <sup>3</sup> and m <sup>3</sup> .			

3. Change 240000 cm<sup>3</sup> into m<sup>3</sup>.

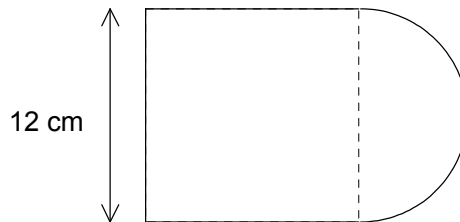
240000 cm<sup>3</sup> = .....m<sup>3</sup> [2]

4. A cylinder has radius 7.2 cm and height 16.5 cm.  
Find the volume of the cylinder.  
Give your answer correct to **3 significant figures**.



Volume = .....cm<sup>3</sup> [3]

5. The diagram below is formed from a semi-circle and a square.  
Find the area of the entire shape.  
Give your answer correct to 3 significant figures.



Area = ..... [4]

Grade B objectives	☺	☹	☹
• I can solve problems involving area, volume or surface area.			
• I can use dimensions to identify whether a formula represents an area, volume or length.			

6. In the following formulae  $a$ ,  $b$  and  $c$  represent lengths.  
For each formula state whether it could represent a length, an area, a volume or none of these.

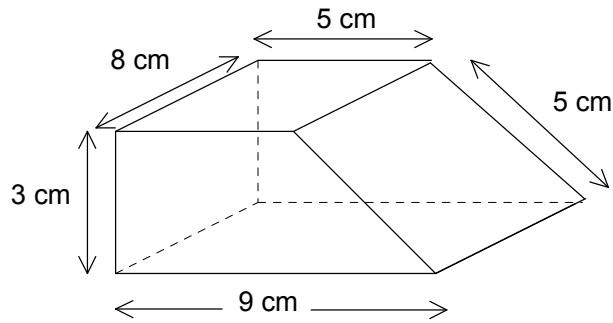
a)  $2\pi a$  .....

b)  $\frac{\pi a^2 b}{c}$  .....

c)  $3ab + 2abc$  .....

[3]

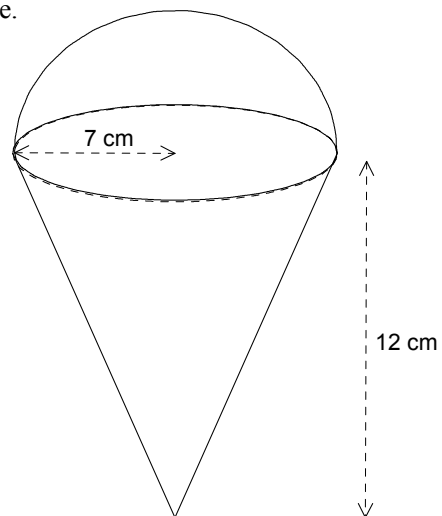
7. A prism has a cross-section in the shape of a trapezium.  
Calculate the surface area of the prism.



Surface area = .....cm<sup>2</sup> [4]

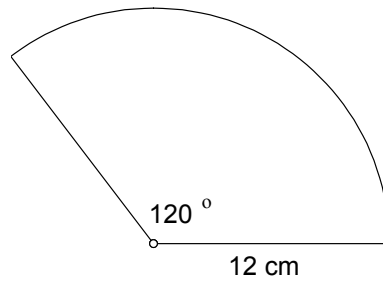
Grade A objectives	😊	☹	😞
• I can find the area of a sector and the length of an arc.			
• I can find the volume and surface area of a cone, pyramid and sphere.			

8. The diagram below is formed from a hemisphere and a cone.  
Calculate the volume of the entire object.  
Give your answer correct to 3 significant figures.



Volume = .....cm<sup>3</sup> [4]

9. The diagram shows a sector with radius 12 cm.  
The angle at the centre of the sector is  $120^\circ$ .  
Calculate the perimeter of the sector.  
Give your answer in terms of  $\pi$ .

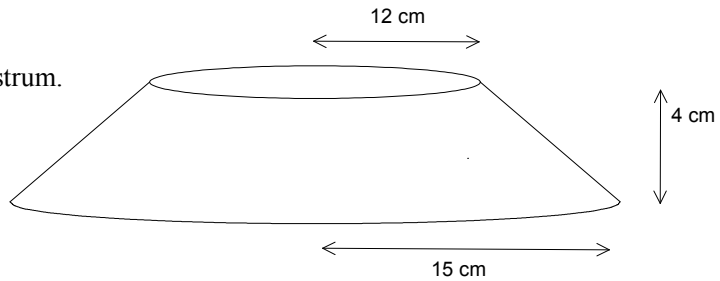


Perimeter = ..... cm [4]

<b>Grade A* objectives</b>	☺	☹	☹
• I can solve more complex problems involving arc length and areas of sectors.			
• I can solve problems involving cones, pyramids and spheres.			

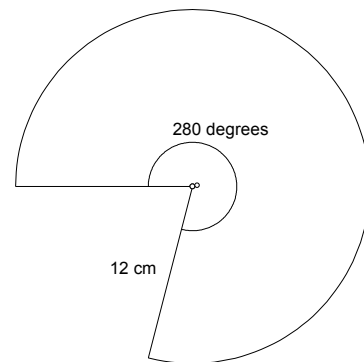
10. A frustrum is formed by slicing a cone (with radius 12 cm) off the top of a cone with radius 15 cm.  
The height of the frustrum is 4 cm.

Find the total surface area of the frustrum.



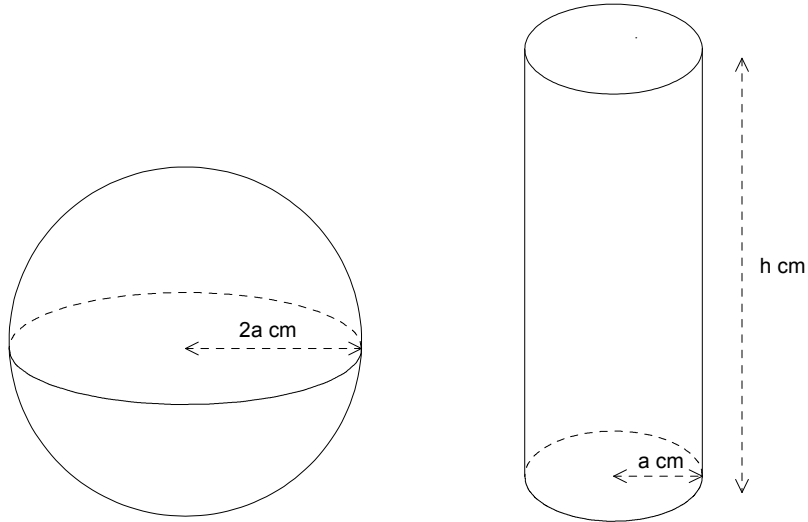
Surface area = .....cm<sup>2</sup> [5]

11. The diagram shows the net for a cone.  
Work out the radius of the cone.



Radius = .....cm [4]

12. A sphere has radius  $2a$  cm.  
A cylinder, with radius  $a$  cm, has the same volume as the sphere.  
Work out an expression (involving  $a$ ) for the **exact** height,  $h$ , of the cylinder.



$h = \dots\dots\dots$ cm [4]

**Teacher feedback:**

**In order to get to the next grade (or in order to improve the quality of your work) you should...**

**The following aspect of your work was particularly good ...**