

# Geometry 2H Assessment

Higher Level



All questions

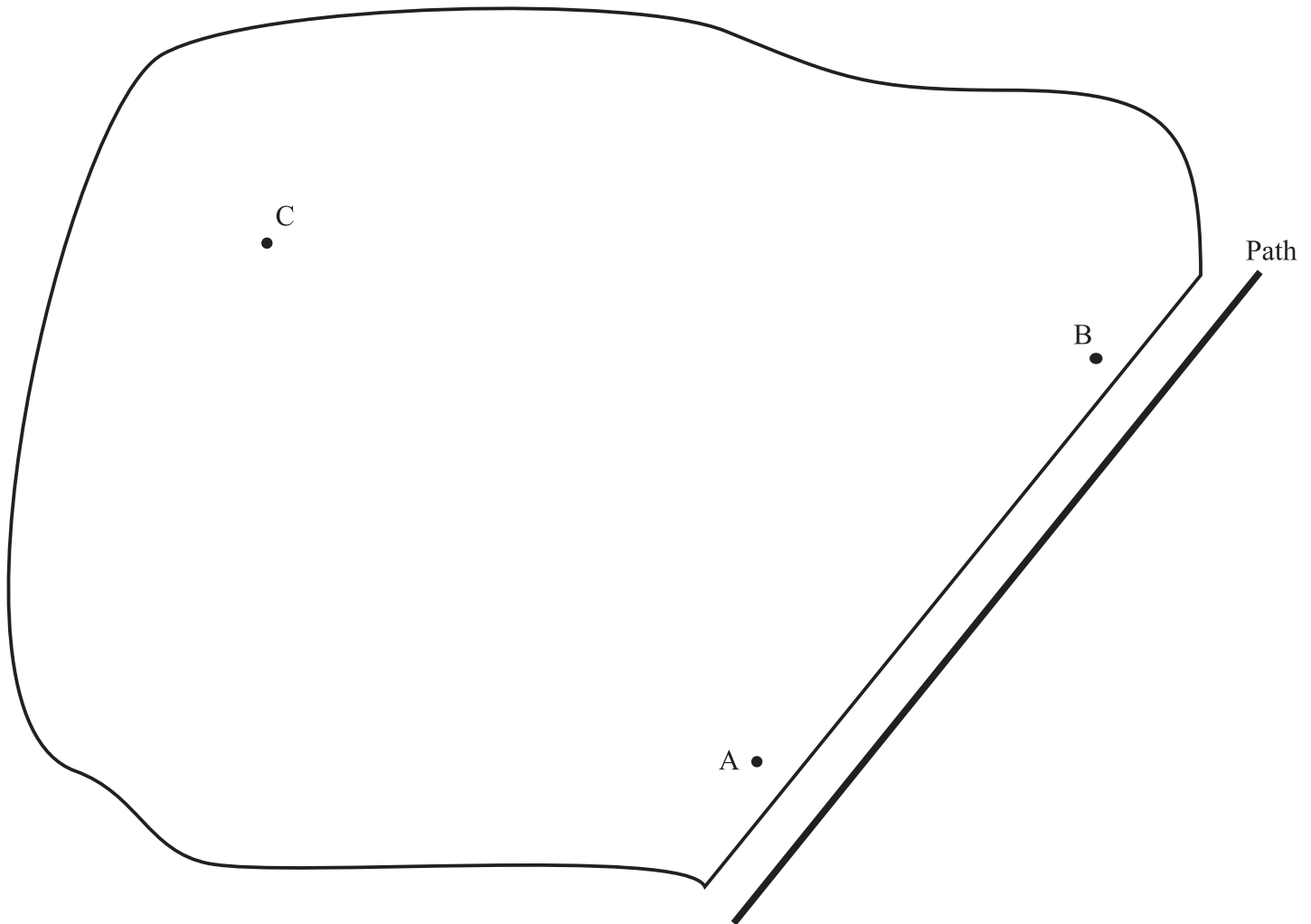
Clip	Grade	Title of clip	Question(s)	Marked out of	Score	%
165.....	5.....	Loci .....	1	5	___	___
166.....	5.....	Congruent Triangles .....	2 - 3	5	___	___
167.....	5.....	Sectors of a Circle .....	4	6	___	___
168.....	5.....	Trigonometry .....	5 - 7	23	___	___
169.....	5.....	Spheres.....	8	6	___	___
170.....	5.....	Pyramids .....	9	3	___	___
171.....	5.....	Cones .....	10 - 11	11	___	___
172.....	5.....	Frustums.....	12	5	___	___

*Out of 64*      TOTAL SCORE \_\_\_\_\_

Final Percentage  %

- 1) This is a picture of a garden with a path running alongside. Three posts are in the garden at A, B and C.

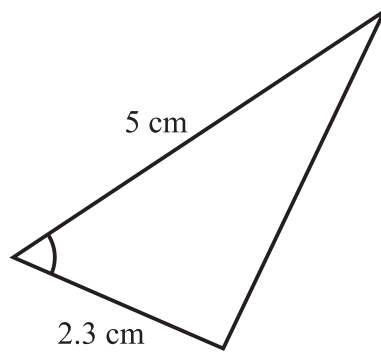
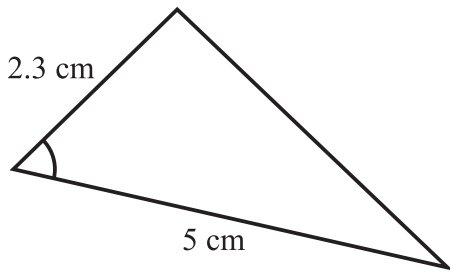
Scale: 1 cm = 1 metre



Treasure is buried in the garden so that it is:  
between 4 m and 6 m from A,  
closer to B than to C,  
more than 4 m from the path.

Using ruler and compasses only, shade the area of the garden where the treasure might be buried. **5**  
You **must** show all your construction arcs.

2) Put a cross in the box next to the rule which explains why these two triangles are congruent. 2



- RHS
- SAS
- ASA
- SSS
- None of the above because they are not congruent.

3) Prove that triangle ABC is congruent to triangle CDA. 3

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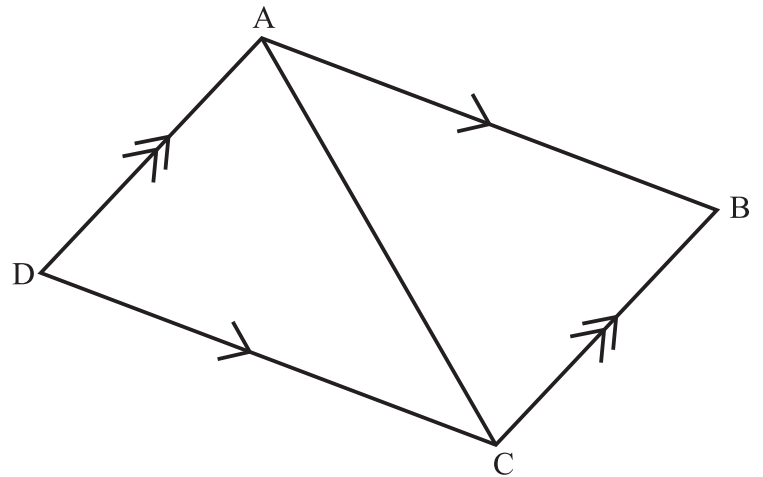
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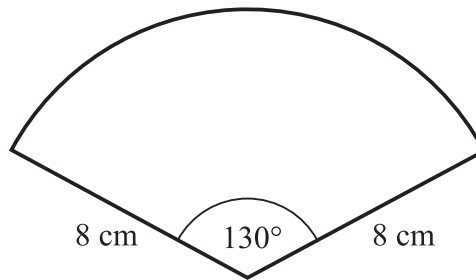
4) The diagram shows a sector of a circle.

- a) Find the area of the sector.  
Give your answer to 1 decimal place.

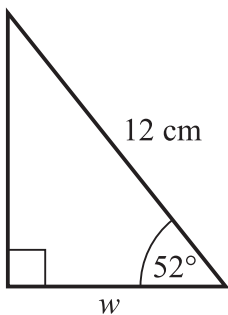
\_\_\_\_\_ cm<sup>2</sup> 3

- b) Find the perimeter of the sector.  
Give your answer to 1 decimal place.

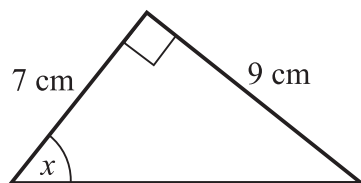
\_\_\_\_\_ cm 3



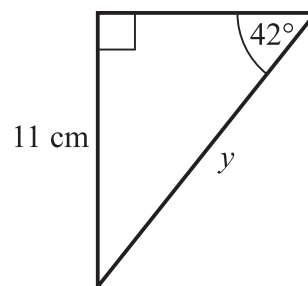
5) Find the lengths of the missing sides and angles.  
Give your answers to 1 decimal place.



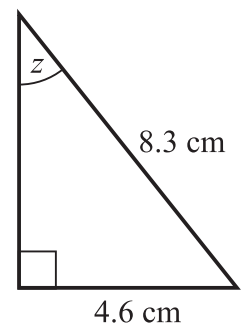
a)  $w =$  \_\_\_\_\_ cm 3



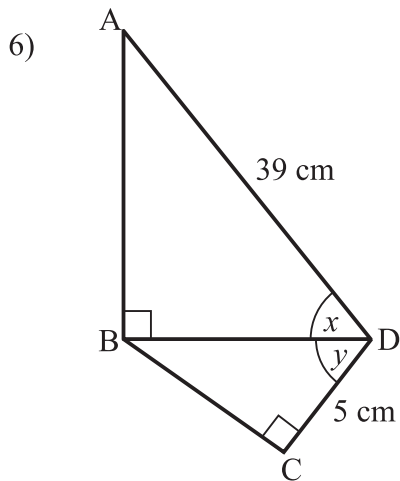
b)  $x =$  \_\_\_\_\_ ° 3



c)  $y =$  \_\_\_\_\_ cm 3



d)  $z =$  \_\_\_\_\_ ° 3



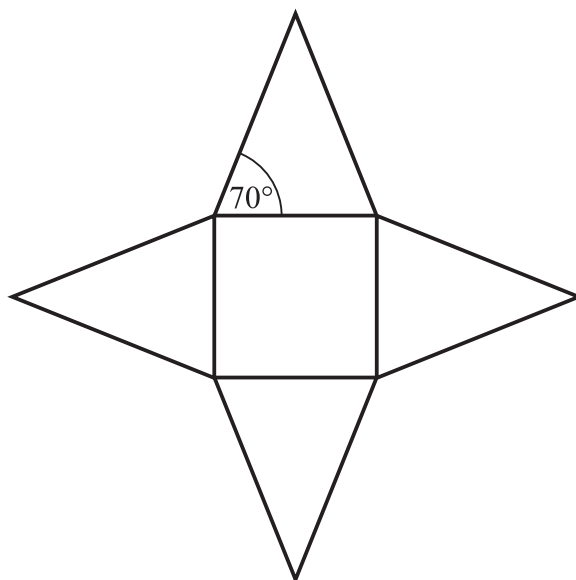
In the diagram,  $\cos x = \frac{1}{3}$

Find the value of  $\sin y$ , showing all your working in the space, below. 6

7) The diagram shows the net of a square-based pyramid.

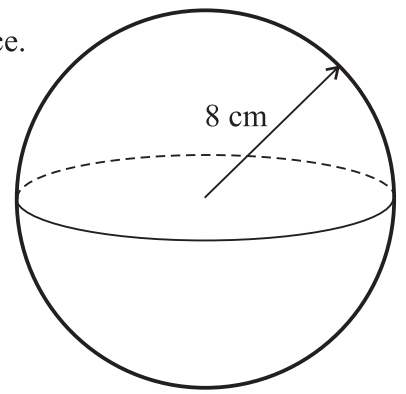
The area of the square base is  $25 \text{ cm}^2$ .

Work out the area of one triangular face. 5  
You must show all your working.



- 8) a) Work out the volume of the sphere, giving your answer to 1 decimal place.

$\text{Volume} = \frac{4}{3} \pi r^3$ $\text{Surface area} = 4\pi r^2$
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Volume = \_\_\_\_\_ cm<sup>3</sup>     3

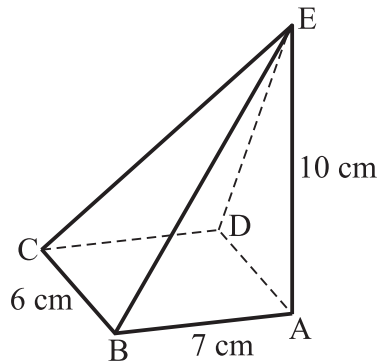
- b) Work out the surface area of the sphere, giving your answer to 1 decimal place.

Surface area = \_\_\_\_\_ cm<sup>2</sup>     3

- 9) The pyramid has a rectangular base and E is directly above A.

Find the volume of the pyramid.

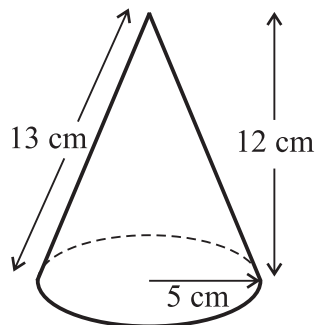
$\text{Volume} = \frac{1}{3} \times \text{base area} \times \text{height}$
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Volume = \_\_\_\_\_ cm<sup>3</sup>     3

- 10) For the cone, shown, find

- a) The volume.



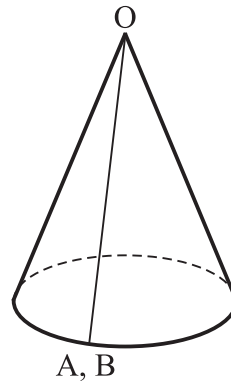
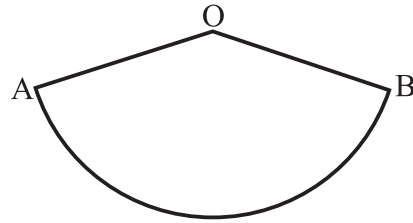
$\text{Volume} = \frac{1}{3} \pi r^2 h$ $\text{Curved surface area} = \pi r l$
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Volume = \_\_\_\_\_ cm<sup>3</sup>     3

- b) The **total** surface area.

**Total** surface area = \_\_\_\_\_ cm<sup>2</sup>     3

11) The sector AOB of a circle is shown.



$$\text{Volume} = \frac{1}{3} \pi r^2 h$$

The length of its arc is  $16\pi$  cm.

The sector is folded so that the straight edges meet and form a cone.

a) Calculate the radius of the base of the cone.

Radius is \_\_\_\_\_ cm    2

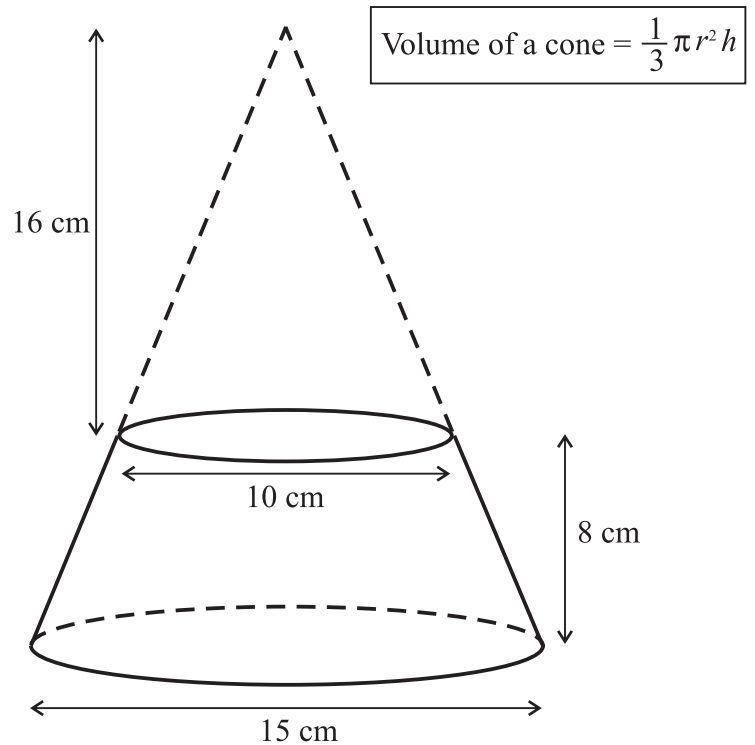
b) The volume of the cone is  $1024\pi$  cm<sup>3</sup>.

Work out the perpendicular height of the cone.

Perpendicular height is \_\_\_\_\_ cm    3

12) The frustum, shown, is made by removing a small cone from a similar large cone.

Work out the volume of the frustum.  
Give your answer to 1 decimal place.



Volume of the frustum = \_\_\_\_\_ cm<sup>3</sup>    5