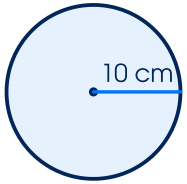
GCSE HIGHER · REVISION MAT 4

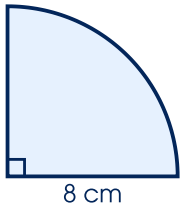
Circles, cones, spheres and pyramids

1 Find the circumference of a circle of radius 10 cm.

Give your answer in terms of π.



2 Find the area of a quarter circle of radius 8 cm, to 1 d.p.



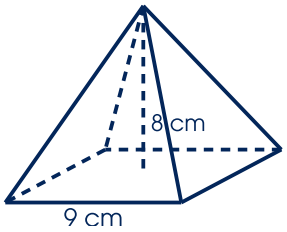
3 Show that a circle of area 49π cm^2 has diameter 14 cm.

4 A running track has two straights and two semicircular ends.



Find the length of one lap.

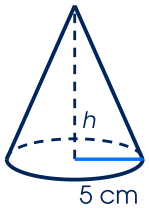
5 Show that the volume of this pyramid is 216 cm^3.



Its base is a square.

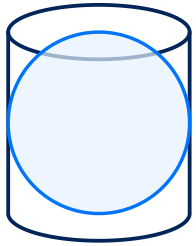
6 A cone has volume 100π cm^3 and radius 5 cm.

Find its height and slant height.



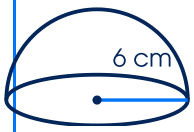
7 A sphere fits exactly inside a cylinder.

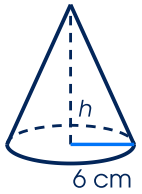
Show that the sphere's volume is $\frac{2}{3}$ of the cylinder's.



8 A solid hemisphere of radius 6 cm is melted and recast as a cone of radius 6 cm.

Find the height of the cone.





ANSWERS · REVISION MAT 4

Circles, cones, spheres and pyramids

1 **20π cm**

2 $\frac{1}{4}\pi \times 64 = 16\pi$

50.3 cm²

3 $r^2 = 49$, $r = 7$

d = 14

4 $2 \times 100 + 60\pi$

388.5 m

5 $\frac{1}{3} \times 81 \times 8$

= 216 cm³

6 $\frac{1}{3} \times 25h = 100 \Rightarrow h = 12$

Height 12 cm, slant 13 cm

7 Cylinder: $\pi r^2 \times 2r = 2\pi r^3$

Sphere: $\frac{4}{3}\pi r^3$

$\frac{4}{3} \div 2 = \frac{2}{3}$

8 Hemisphere 144π

$\frac{1}{3}\pi \times 36h = 144\pi$

h = 12 cm

Mr&Mrs MATHS