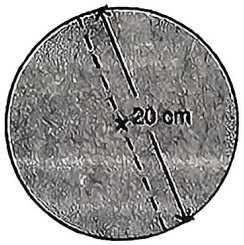
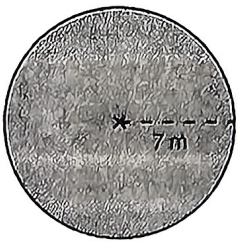
Lunar New Year Holiday Assignment

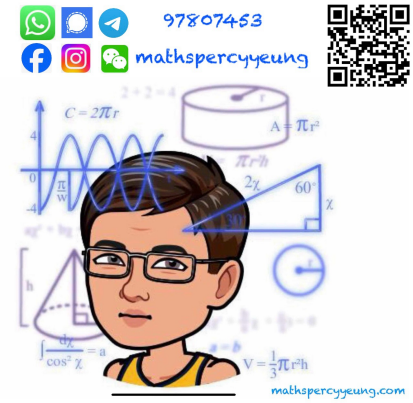
1. Find the circumferences and the areas of the following circles.

(a)



(b)



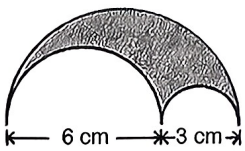


2. **(a)** Find the diameter of a semi-circle if its area is 40 m^2.

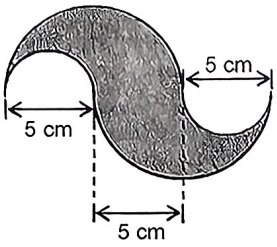
(b) Find the radius of a semi-circle if its perimeter is 100 cm.

3. The following figures are formed by semi-circles. Find their perimeters and areas.

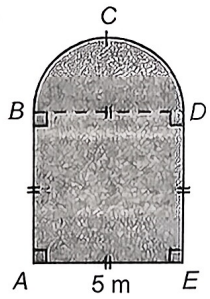
(a)



(b)



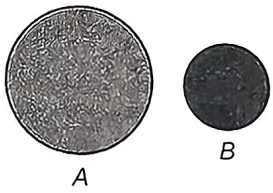
4. The figure shows a field $ABCDE$ which consists of a semi-circle BCD and a square $ABDE$. Find its perimeter and area.



5. In the figure, A and B are two circles. The area of circle A is 81π cm^2, which is 45π cm^2 larger than that of circle B.

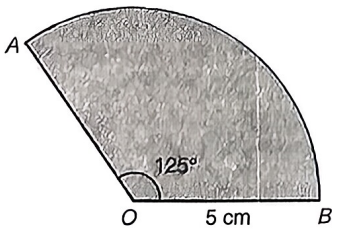
(a) Find the radius of circle B.

(b) Find the difference in circumference between circle A and circle B.

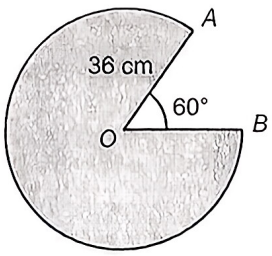


6. In each of the following, find the length of AB, the perimeter and the area of sector AOB with centre O.

(a)

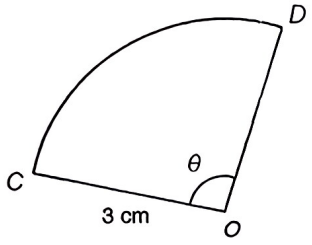


(b)



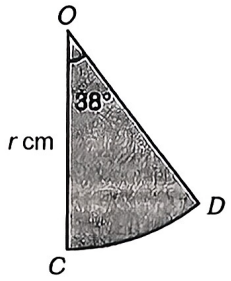
7. Find the unknown in each of the following sectors with centre O.

(a)



CD = 5 cm

(b)

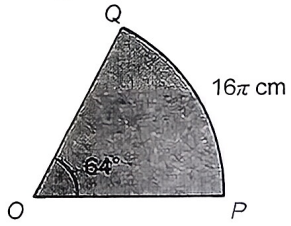


area = 82 cm^2

8. In the figure, POQ is a sector with centre O. It is given that $PQ = 16\pi$ cm and $\angle POQ = 64°$.

(a) Find the radius of the sector.

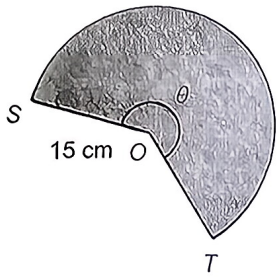
(b) Find the area of the sector.



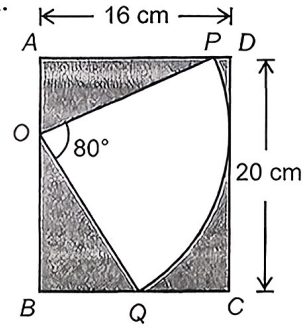
9. In the figure, OST is a sector with centre O. Its radius is 15 cm and area is 435 cm^2.

(a) Find θ.

(b) Find the perimeter of the sector.

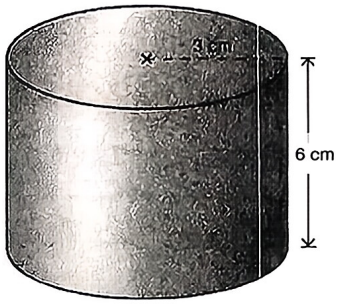


10. In the figure, a sector OPQ with centre O can just be enclosed by rectangle $ABCD$. It is given that $AD = 16$ cm, $CD = 20$ cm and $\angle POQ = 80°$. Find the area of the shaded region.

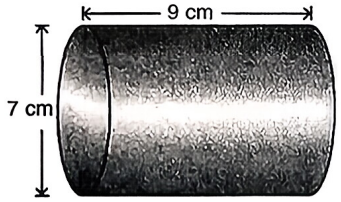


11. Find the volumes, the curved surface areas and the total surface areas of the following right circular cylinders.

(a)

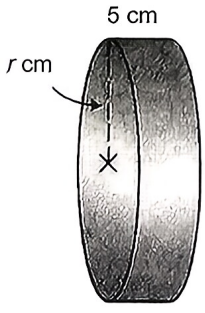


(b)



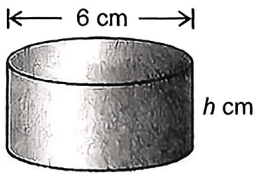
12. Find the unknown in each of the following right circular cylinders.

(a)



volume $= 500\pi$ cm^3

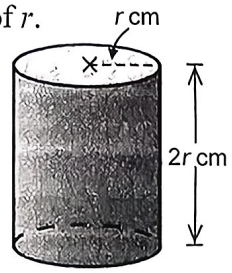
(b)



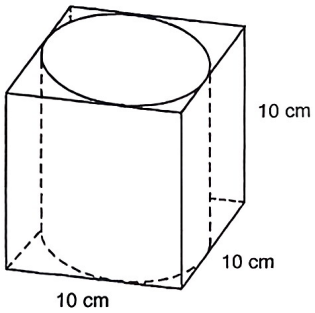
total surface area

$= 42\pi$ cm^2

13. In the figure, the volume of the right circular cylinder is 432π cm^3. Find the value of r.



14. The figure shows a cube of side 10 cm. What is the volume of the largest right circular cylinder that can be put inside the cube?



15. Water flows from a pipe into an empty circular cylindrical tank of base diameter 45 cm and height 1.6 m at a rate of 25 cm^3/s. Find the time taken to fill up the tank in minutes.

16. The height of a right circular cylindrical disc is 5 cm and its volume is 320π cm^3.

(a) Find the base diameter of the disc.

(b) Simon wants to paint the curved surface of the disc. The painting cost is \$0.08/cm^2. How much does it cost to paint the disc?

17. A metal right circular cylinder X is melted and recast into 6 identical small right circular cylinders of the same height as cylinder X as shown in the figure. Find the base radius of the smaller cylinder.