

Arc Length-Sector Area

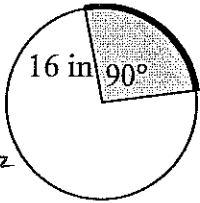
Name: _____

8. Calculate the sector area:

a.

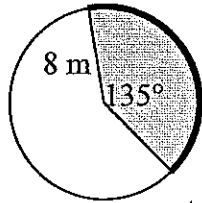
$$\frac{90}{360} = \frac{X}{\pi 16^2}$$

$$X = 64\pi \text{ m}^2$$



b.

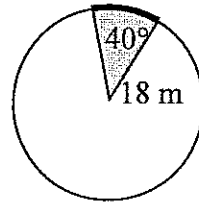
$$\frac{135}{360} = \frac{X}{8^2\pi}$$



$$X = 24\pi \text{ m}^2$$

c.

$$\frac{40}{360} = \frac{X}{18^2\pi}$$



$$X = 36\pi \text{ m}^2$$

9. The area of a circle is 225π square inches. Find the area of the sector whose central angle is 45° .

$$\frac{\text{PART (DEGREES)}}{\text{WHOLE (DEGREES)}} = \frac{\text{PART (SECTOR AREA)}}{\text{WHOLE (AREA OF A CIRCLE)}}$$

$$\frac{45}{360} = \frac{X}{225\pi}$$

$$X = 28.125\pi \text{ in}^2$$

10. The central angle of a sector is 60° and the area of the circle is 144π . What is the area of the sector?

$$\frac{60}{360} = \frac{X}{144\pi} \quad X = 24\pi \text{ UNITS}^2$$

11. A circle has a radius of 12. Find the area of the sector whose central angle is 120° .

$$\frac{120}{360} = \frac{X}{144\pi} \quad X = 48\pi \text{ UNITS}^2$$

12. Find the radius of a circle which has a sector area of 9π whose central angle is 90° .

$$\frac{90}{360} = \frac{9\pi}{\pi r^2} \quad r^2 = 36$$

$$r = 6 \text{ UNITS}$$

13. The central angle of a sector is 72° and the sector has an area of 5π . Find the radius.

$$\frac{72}{360} = \frac{5\pi}{\pi r^2} \quad r^2 = 25$$

$$r = 5 \text{ UNITS}$$

14. Find the measure of the central angle of a sector if its area is 5π and the radius is 6.

$$\frac{X}{360} = \frac{5\pi}{\pi 36} \quad X = 50^\circ$$