

If an arc is a fraction of the circle it is contained on, the length of arc is a fraction of the circumference of the circle, the formula for *arc length* is:

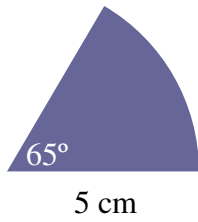
$$L = \frac{\theta}{360} \cdot 2\pi r \quad \text{or} \quad L = r\theta$$

If a sector is a fraction of the circle it is contained in, the area of the sector is a fraction of the area of the circle. The formula for the *area of a sector* is:

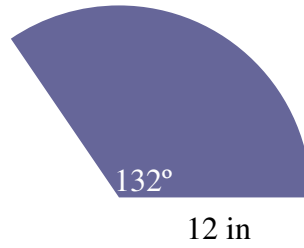
$$A = \frac{\theta}{360} \cdot \pi r^2 \quad \text{or} \quad A = \frac{1}{2} r^2 \theta$$

Find the arc length and the area for the following sectors.

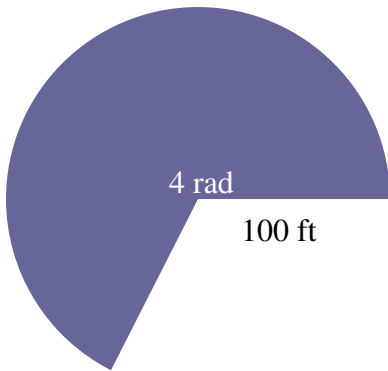
1.



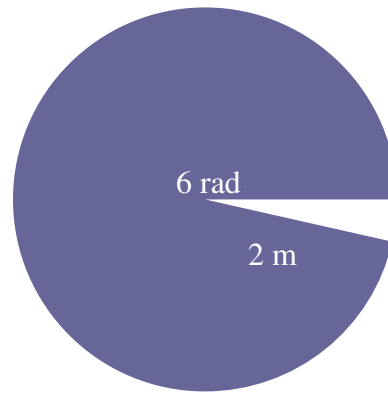
2.



3.



4.



5. Find the radius of the circle that contains a sector with angle measure 125° and an arc length of 12 miles.
6. Find the measure of the angle of the sector contained in a circle with radius 20 inches with an arc length of 92 inches. Give your answer in radians.
7. Find the measure of the angle of the sector contained in a circle with radius 35 feet and area of 115 square feet. Give your answer in degrees.
8. Find the radius of the circle that contains a sector with angle measure 1 radian and an area of 38 square meters.