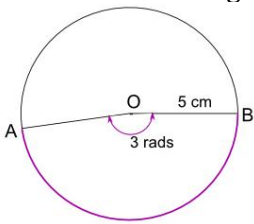


Finding Radian Measures:

1. Given a circle with circumference 12π in, an angle intercepts an arc of 3π in. Express the central angle θ in radians.
2. Given a circle with radius 6 m, an angle intercepts an arc of 11 m. Express the central angle θ in radians.
3. Given a circle of radius 35 mi. An angle intercepts an arc of 20 mi. Express the central angle θ in radians.
4. Given a circle of radius 50 ft. An angle intercepts an arc of 35 ft. Express the central angle θ in radians.
5. Given a circle with area 64π mm², an angle intercepts an arc of 10π mm. Express the central angle θ in radians.
6. Given a circle with circumference 52π yd, an angle intercepts an arc of 100 yd. Express the central angle θ in radians.

Arc Length:

7. In a circle with a 2.3-ft radius, how long is an arc associated with a central angle of 3.1 radians?
8. In a circle with a 36-cm radius, how long is an arc associated with a central angle of 0.24 radians?
9. Calculate the length of arc AB.


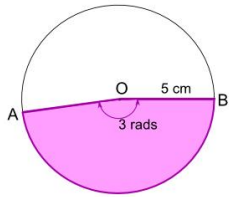
The diagram shows a circle with center O. A central angle of 3 radians is shown, intercepting arc AB. The radius OB is labeled as 5 cm.
10. In a circle with 144m^2 area, how long is an arc associated with a central angle of 2.6 radians?

11. In a circle with a 16-in radius, how long is an arc associated with a central angle of $\frac{\pi}{2}$ radians?

12. Explain how you find arc length when given radian measure of the central angle?

Area of Sectors:

13. Calculate the area of sector OAB.



14. Given a sector with radius $r = 3$ mm and a corresponding arc length of 5π mm, find the area of the sector.

15. A sector of a circle is an area bounded by two radii and an arc. A sector has an angle at the center of the circle. The circle has a radius of 5cm. Calculate the area of each sector when the angle at the center is:

a) 1.2 radians

b) $\frac{\pi}{2}$ radians

16. Explain how you find sector area when given radian measure of the central angle?

17. A sector of a circle with radius of 5 cm has area 50 cm^2 . What is the angle (in radians) at the center of this sector?

18. A sector of a circle with radius 18 ft has area 36 ft^2 . What is the angle (in radians) at the center of this sector?