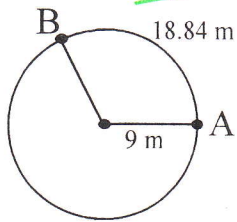


MORE WITH ARC LENGTH, AREA OF SECTORS, AND SPHERES

Find the indicated measure.

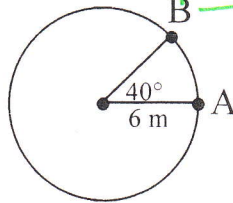
1. $m \widehat{AB} = 120^\circ$



$$18.84 = \frac{x}{360} \cdot \pi \cdot 18$$

$$x = \frac{18.84(360)}{18\pi} = 120^\circ$$

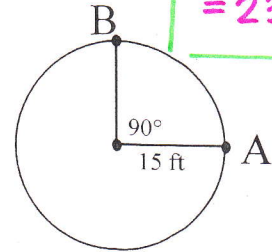
2. length of $\widehat{AB} = 4.19\text{m}$



$$x = \frac{40}{360} \cdot \pi \cdot 12$$

$$x = 4.19\text{ m}$$

3. length of $\widehat{AB} = 23.55\text{ft.}$



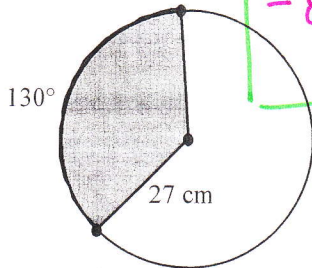
$$x = \frac{90}{360} \cdot \pi \cdot 30$$

$$= 23.55\text{ ft.}$$

4. Find the distance traveled in one back-and-forth swing by the weight of a 12-inch pendulum that swings through an 80° angle.

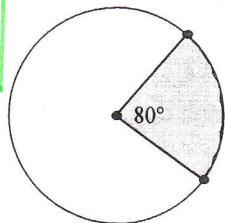
$$x = \frac{80}{360} \cdot \pi \cdot 24 \cdot 2 \quad \text{or} \quad \frac{160}{360} \cdot \pi \cdot 24 = 33.49\text{ in}$$

5. Area of sector = 826.61 cm^2



$$x = \frac{130}{360} \cdot \pi \cdot 27^2 = 826.61\text{ cm}^2$$

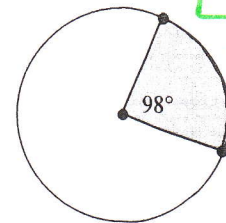
6. diameter = 11.72 ft.



$$24 = \frac{80}{360} \cdot \pi r^2$$

$$r = \sqrt{\frac{24(360)}{80\pi}} = 5.86$$

7. radius = 6.89 in



$$40.62 = \frac{98}{360} \cdot \pi r^2$$

$$r = \sqrt{\frac{40.62(360)}{98\pi}} = 6.89$$

8. Find the surface area of a sphere with a diameter of 11.4 m.

$$SA = 4\pi \cdot 5.7 \cdot 5.7$$

$$= 408.07\text{ m}^2$$

9. Find the radius of a sphere with a surface area of 24.63 ft^2 .

$$24.63 = 4\pi r^2$$

$$r = \sqrt{\frac{24.63}{4\pi}} = 1.4\text{ ft.}$$

10. Find the volume of a sphere with a diameter of 20 m.

$$V = \frac{4 \cdot \pi \cdot 10^3}{3} = 4186.67\text{ m}^3$$