Arc Length-Sector Area   Name: _key_

8. Calculate the sector area:
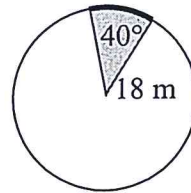
a. 64π in.^{2}

16 in, 90°

b. 24π m^2

8 m, 135°

c. 36π m^2

40°, 18 m
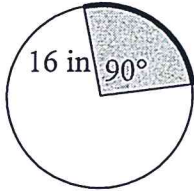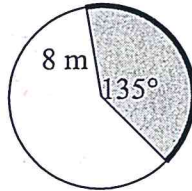
9. The area of a circle is 225π square inches. Find the area of the sector whose central angle is 45°.

$\frac{45}{360} \cdot (225\pi)$ $= \boxed{\frac{225}{8}\pi \text{ in.}^2}$

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

$\frac{60}{360} \cdot 144\pi$ $= \boxed{24\pi \text{ u}^2}$

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

$\frac{120}{360} \cdot \pi(12)^2$ $= \boxed{48\pi \text{ u}^2}$

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

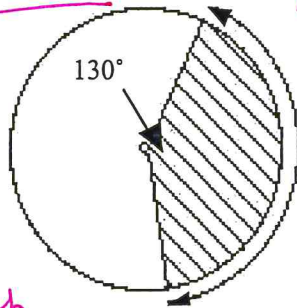$9\pi = \frac{90}{360} \cdot \pi r^2$ $\rightarrow 4(9) = (\frac{1}{4} \cdot r^2)4$ $\rightarrow \sqrt{36} = \sqrt{r^2}$ $\boxed{r = 6}$

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

$5\pi = \frac{72}{360} \cdot \pi r^2$ $\boxed{r = 5}$

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

$5\pi = \frac{x}{360} \cdot \pi(6)^2$ $\rightarrow \frac{5\pi}{36\pi} = \frac{x}{360} \cdot \frac{36\pi}{36\pi}$ $\frac{360}{1}(\frac{5}{36}) = \frac{x}{360} \cdot \frac{360}{1}$
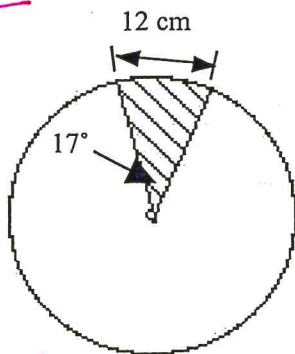
$\boxed{x = 50°}$

Find the radius. Round the nearest tenth.

5. Arc Length

$\frac{360}{130}(19.6) = \left(\frac{130}{360} \cdot 2\pi r\right)\frac{360}{130}$
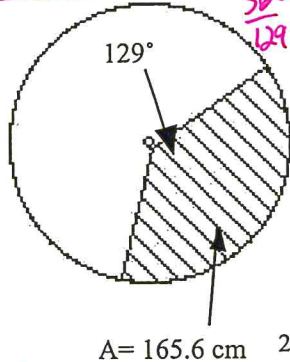
$\frac{54.3}{2\pi} = \frac{2\pi r}{2\pi}$

$r = 8.6 \text{ cm}$

$\boxed{r = 8.6 \text{ cm}}$

130°

19.6 cm

6. Length

12 cm

17°

$12 = \frac{17}{360} \cdot 2\pi r$

$\boxed{r = 40.4 \text{ cm}}$

7. Sector Area

129°

A= 165.6 cm²
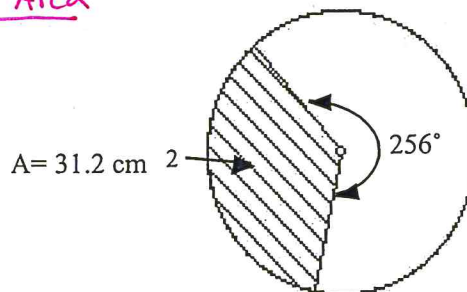
$\frac{360}{129}(165.6) = \left(\frac{129}{360} \cdot \pi r^2\right)\frac{360}{129}$

$\frac{462.14}{\pi} = \frac{\pi r^2}{\pi}$

$\sqrt{147.1} = \sqrt{r^2}$

$r = 12.1$

$\boxed{r = 12.1 \text{ cm}}$

8. Sector Area

A= 31.2 cm²

256°

$31.2 = \frac{104}{360} \cdot \pi r^2$

$\boxed{r = 5.9 \text{ cm}}$