CIRCLES
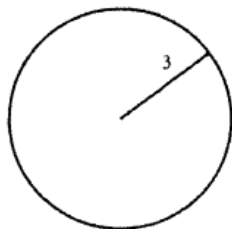
89. CIRCUMFERENCE OF A CIRCLE

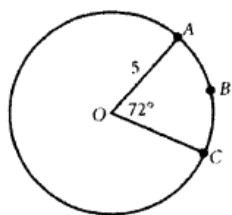**Circumference of a Circle = $2\pi r$**

Here, the radius is 3, and so the circumference is $2\pi(3) = 6\pi$.

90. LENGTH OF AN ARC

An **arc** is a piece of the circumference. If n is the measure of the arc's central angle, then the formula is:

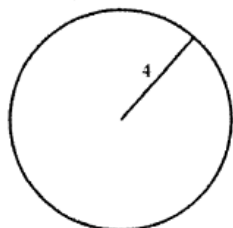**Length of an Arc = $\dfrac{n}{360}(2\pi r)$**

In the figure above, the radius is 5 and the measure of the central angle is 72°. The arc length is $\dfrac{72}{360}$ or $\dfrac{1}{5}$ of the circumference:
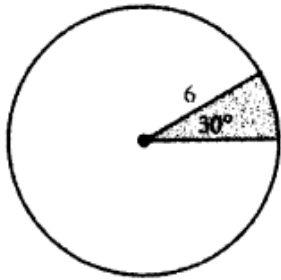
$$\left(\frac{72}{360}\right) 2\pi\,(5) = \left(\frac{1}{5}\right) 10\pi = 2\pi$$

91. AREA OF A CIRCLE

Area of a Circle = πr^2

Area of a Sector $= \left(\dfrac{n}{360} \right) (\pi r^2)$

In the figure above, the radius is 6 and the measure of the sector's central angle is 30°. The sector has $\dfrac{30}{360}$ or $\dfrac{1}{12}$ of the area of the circle:

$$\left(\dfrac{30}{360} \right) (\pi) (6^2) = \left(\dfrac{1}{12} \right) (36\pi) = 3\pi$$