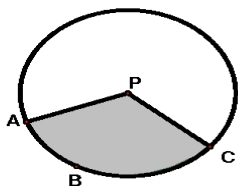


Geometry Notes - Arc Length and Areas of Sectors and Segments of Circles

Arc length = $\frac{m}{360} C$ where m is the measure of the central angle and C is the circumference.

Area of sector = $\frac{m}{360} \pi r^2$ where m is the measure of the central angle and r is the radius of the circle.

Example 1: Given: $\square P$ and $m\angle APC = 120^\circ$



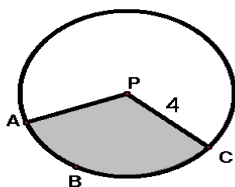
a. Find the length of ABC

$$\text{Arc length} = \frac{120}{360} \pi(8)$$

$$\text{Arc length} = \frac{1}{3}(8\pi)$$

$$\text{Arc length} = \frac{8\pi}{3} \text{ units}$$

Given: $\square P$ and $m\angle APC = 120^\circ$



b. Find the area of the shaded sector.

$$A_{\text{sector}} = \frac{120}{360} \pi r^2$$

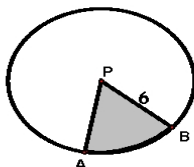
$$A_{\text{sector}} = \frac{1}{3} \pi 4^2$$

$$A_{\text{sector}} = \frac{16\pi}{3} \text{ units}^2$$

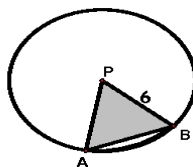
Example 2:

Note: Sector of Circle - Triangle = Segment of Circle

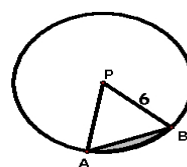
Given: $\square P$ and $m\angle APB = 60^\circ$



$$\frac{60}{360} \pi 6^2$$



$$\frac{6^2 \sqrt{3}}{4}$$



$$6\pi - 9\sqrt{3} \text{ units}^2$$