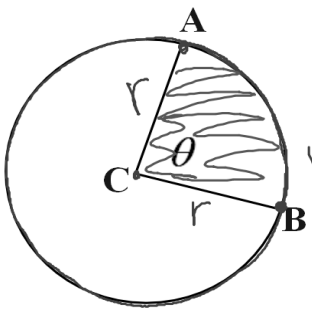
13-2 Radian Measure, Arc Length, and Sector Area

Trig. Std. 1.0



Arc Length distance from A → B

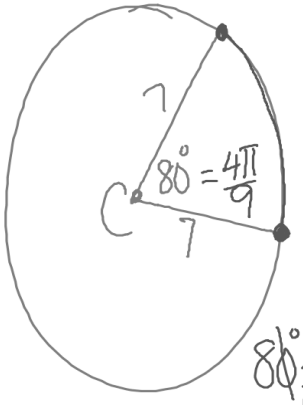
$\frac{\theta}{360^\circ} \cdot 2\pi r$

$S = r\theta$ ← (radians)

Sector Area

$\frac{\theta}{360^\circ} \cdot \pi r^2 = \frac{\pi}{360} \cdot \theta r^2 = \frac{1}{2} r^2 \theta$ = Area (Sector)

Example: The central angle of a sector of a circle with radius 7 cm is 80°. Find the area of the sector and the length of the arc of the sector.



$A = \frac{1}{2} r^2 \theta = \frac{1}{2}(49)\left(\frac{4\pi}{9}\right)$

$= \frac{98\pi}{9}\ cm^2$

$S = r\theta = 7\left(\frac{4\pi}{9}\right) = \frac{28\pi}{9}$ cm

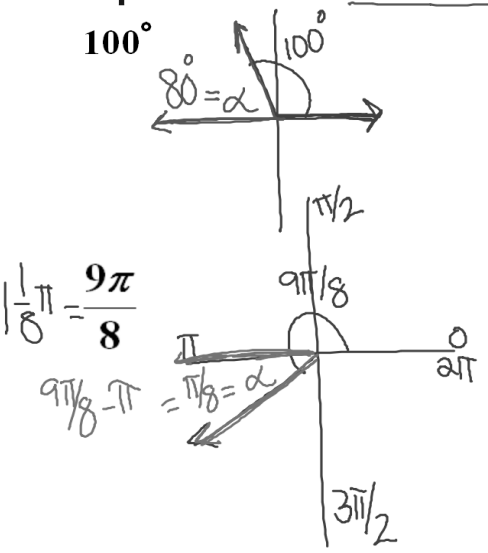
$80 \cdot \frac{\pi}{180}$ arc length

13-3 reference angles

A reference angle is an <u>acute</u> angle formed between the terminal side of an angle and the *x*-axis.

Example: Find the reference angle for each angle. α = alpha

100°



$1\frac{1}{8}\pi = \frac{9\pi}{8}$

$\frac{-7\pi}{4}$

-50°