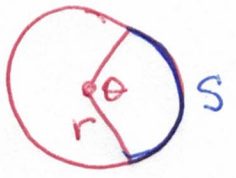
Arc Length

UNIT 6 LESSON ____ INVESTIGATION ____ NOTES

Lesson Vocabulary

Length of an arc – Linear measure, not in degrees.



$S = r\theta$

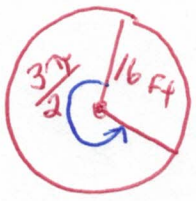
S - length of arc
r - radius
θ - Central ∠ in radians

ex.) Find the length of the arc. Round to the nearest tenth.

a)

$S = r\theta$
$S = 13\left(\frac{\pi}{6}\right)$
$S = 6.8$ in

b)



$S = r\theta$
$S = 16\left(\frac{3\pi}{2}\right)$
$S = 75.4$ ft.

ex.) Find the measure of the central ∠.

a) Arc = 54 cm, r = 18

$S = r\theta$

$\frac{54}{18} = \frac{18\theta}{18}$

$\theta = 3$

ex.) Find the radius.

a) Arc = 70, $\theta = \frac{19\pi}{12}$

$S = r\theta$

$\frac{70}{19\pi/12} = \frac{\frac{19\pi}{12} r}{19\pi/12}$

$14.1 = r$