Bellwork Wednesday, April 2, 2014

1. In which quadrant or on which axis is the terminal side of each angle?

a) $\theta = \frac{29\pi}{7} - 2\pi$

$\frac{29\pi}{7} - \frac{14\pi}{7}$

$\frac{15\pi}{7} - \frac{14\pi}{7} = \frac{\pi}{7}$

Quad I

b) $\theta = -\frac{73\pi}{10} + \frac{20\pi}{10}$

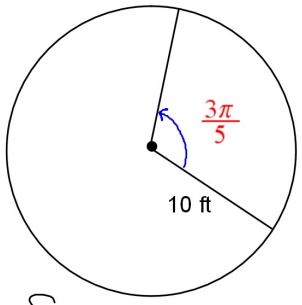
$-\frac{53\pi}{10} + \frac{60\pi}{10}$

$\frac{7\pi}{10}$

Quad II

2. Find the length of each intercepted arc. For a) give answer in terms of π and for b) round to the nearest tenth.

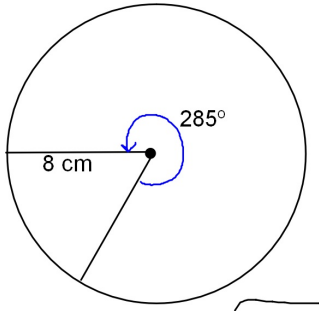
a)



$S = r\theta = 10\text{ft}\left(\frac{3\pi}{5}\right)$

$= 6\pi\text{ ft}$

b)



$\frac{285^\circ}{360^\circ} = \frac{X}{2\pi(8)}$ = 39.8cm

3. The wheel on a car has a radius of 15 inches. The car tire turns through an angle of 75.2π radians. Find the distance the car traveled in feet.

$S = r\theta$

$(15\text{in})(75.2\pi)$

$= 3543.72\text{in} = 295.31\text{ft}$

4. The wheel on a large truck has a radius of 18 inches. When the truck has traveled 25,000 miles find the number of rotations that the wheel has made.

Hint: you'll need the fact that 1 mile = 5280 feet
and 1 foot = 12 inches

$25{,}000\text{mi} \cdot \frac{5280\text{ft}}{1\text{mi}} \cdot \frac{12\text{in}}{1\text{ft}}$

$25{,}000\text{mi} = 18\text{in}\,\theta$

$1{,}584{,}000{,}000\text{in} = 18\text{in}\,\theta$

$88{,}000{,}000 = \theta$ radians

$\div 2\pi$

$\rightarrow 14{,}005{,}634$