

Pre-Calculus Chapter 4 test part 1 review

1.) Find the length of the arc on a circle of radius 21 inches intercepted by an arc of 110 degrees.

$$\theta = \frac{s}{r}$$

$$s = r\theta$$

$$110^\circ \cdot \frac{\pi}{180} = \frac{110^\circ \pi}{180} = \frac{11\pi}{18}$$

$$s = 21 \left(\frac{11\pi}{18} \right)$$

$$s = 40.32 \text{ in.}$$

2.) Frosty the snowman was peddling his unicycle that has 22" radius wheels along the Winter Wonderland Trail. If the wheel made 40 rpm, what is his speed in miles per hour?

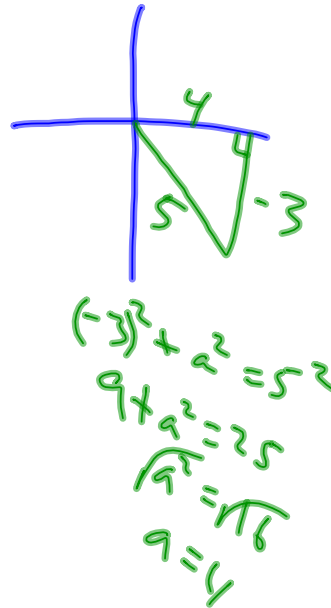
$$\frac{40 \text{ rev.}}{1 \text{ min.}} \cdot \frac{60 \text{ min.}}{1 \text{ hr.}} \cdot \frac{2\pi \text{ ft.}}{1 \text{ rev.}} \cdot \frac{1 \text{ miles}}{5280 \text{ ft.}}$$

$$\approx 2.86 \text{ miles/hr.}$$

3.) Find the indicated trigonometric value in the specified quadrant.

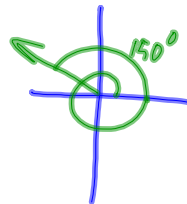
$$\sin \theta = -3/5, \text{ quadrant IV}$$

$$\text{Find } \cos \theta = \frac{4}{5}$$



4.) If angle A = 510 degrees, find the following.

$$\sin A = \sin 150^\circ = \frac{1}{2}$$



$$\cos A = \cos 150^\circ = -\frac{\sqrt{3}}{2}$$

$$\tan A = \frac{\frac{1}{2}}{-\frac{\sqrt{3}}{2}} = -\frac{1}{\sqrt{3}} = -\frac{\sqrt{3}}{3}$$