

1. Rewrite $\frac{3\pi}{2}$ radians in degree measure. (2pts)

$$\frac{3\pi}{2} \text{ rad} \cdot \frac{90 \frac{180 \text{ deg}}{\pi \text{ rad}}}{\pi \text{ rad}} = 270^\circ$$

2. Find an angle coterminal to $\frac{3\pi}{4}$. (2pts)

$$\frac{3\pi}{4} + 2\pi = \frac{3\pi}{4} + \frac{8\pi}{4} = \frac{11\pi}{4} \quad \text{or} \quad -\frac{5\pi}{4}, -\frac{13\pi}{4}, \frac{19\pi}{4}, \dots$$

3. If a merry-go-round is spinning at 20 revolutions per minute. What is the angular speed of the merry-go-round? (3pts)

20 revolutions per minute

is an angular speed measurement.

In radians per minute:

$$\omega = \frac{20 \text{ rev}}{1 \text{ min}} \cdot \frac{2\pi \text{ rad}}{1 \text{ rev}} = 40\pi \text{ rad per min}$$

4. Betty made a circular cake that is 2 feet in diameter. What is the area of a slice of cake if the cake is cut into pieces with a central angle of $\frac{\pi}{6}$. (3pts)

$$A = \frac{1}{2} \cdot r^2 \cdot \theta$$

$$r = 1$$

$$\theta = \frac{\pi}{6}$$

$$A = \frac{1}{2} \cdot 1^2 \cdot \frac{\pi}{6} = \frac{\pi}{12} \text{ ft}^2$$