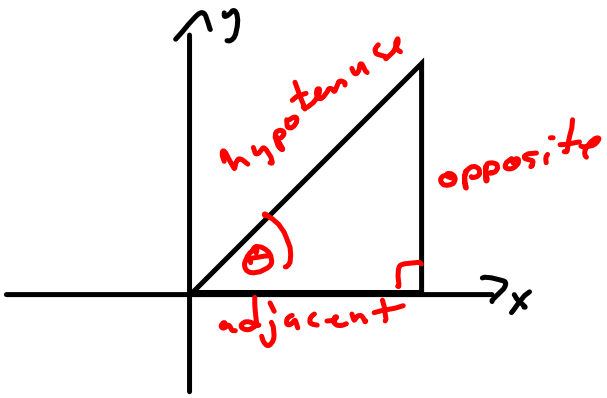
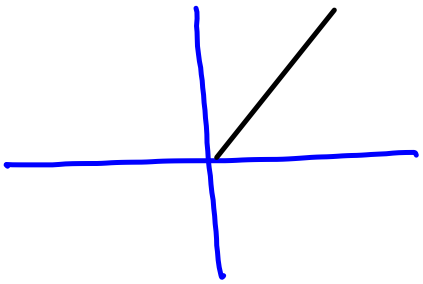


S' 1.1 #19



(1 radian)$\left(\frac{180^\circ}{\pi \text{ radians}}\right)$

```
      57.29577951
90-Ans
      32.70422049
Ans*π/180
      .5707963268
π/2-1
      .5707963268
```

coterminal $\theta + 2n\pi$, $n \in \mathbb{Z}$

$\theta + 360^\circ$, $n \in \mathbb{Z}$

$\theta = \frac{9\pi}{4}$

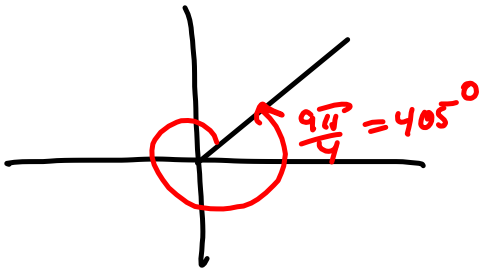
$\frac{9\pi}{4} + 2\pi$

$\frac{9\pi}{4} - 2\pi$

$\left(\frac{9\pi}{4}\right)\left(\frac{180}{\pi}\right) = 405^\circ$

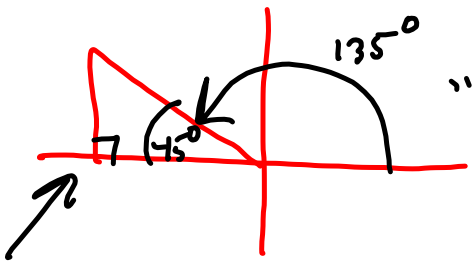
$405^\circ + 360^\circ$

$405^\circ - 360^\circ$

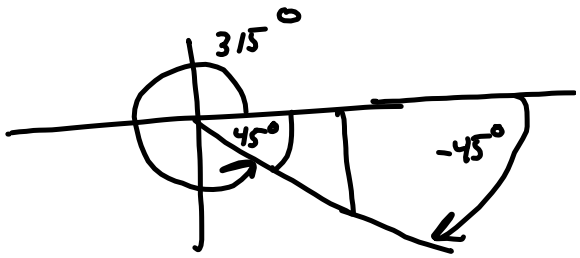


$\frac{8\pi}{4} = 2\pi$

$\frac{9\pi}{4} = \frac{8\pi}{4} + \frac{\pi}{4}$

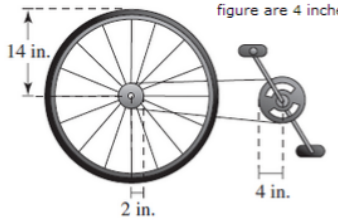


has 45° "reference angle."



–/6 points LarTrig9 1.1.068.

The radii of the pedal sprocket, the wheel sprocket, and the wheel of the bicycle in the figure are 4 inches, 2 inches, and 14 inches, respectively. A cyclist is pedaling at a rate of 1 revolution per second.



(a) Find the speed of the bicycle in feet per second and miles per hour.

feet per second

mph

front: $\frac{1 \text{ rev}}{\text{sec}}$ $\Rightarrow$ Rear: $\frac{4}{2} = 2$ times faster

if they're linked by the chain

Want rate of speed along the ground.

$s = r\theta$ = distance / arc length for going thru an angle θ, on a radius r.

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

Rear sprocket turns twice as fast as front

$$\left(\frac{1 \text{ rev front}}{1 \text{ sec}}\right)\left(\frac{2 \text{ rev back}}{1 \text{ rev front}}\right)\left(\frac{2\pi \text{ radians}}{1 \text{ rev}}\right)\left(\frac{14 \text{ in radius}}{\text{rear wheel}}\right)$$

Rear sprocket spins as fast as rear wheel

$$= \frac{56\pi \text{ in}}{\text{sec}}$$

$$\frac{1 \text{ rev wheel}}{1 \text{ rev main back sprock}}$$

Front 5"
Rear 3"

60 mph = 88 fps for part b.

$$\frac{30}{44} = \frac{15}{22}$$

$$\frac{5\pi}{2} = \left(\frac{5\pi}{2}\right)\left(\frac{180}{\pi}\right) = 450^\circ$$

$$\begin{array}{r} 450^\circ \\ -360^\circ \\ \hline 90^\circ \end{array}$$