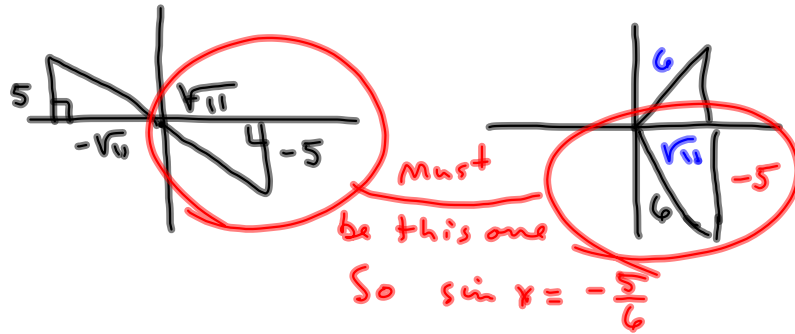


$$\cot x = -\frac{\sqrt{11}}{5} = \frac{a}{o} \quad \cos x = \frac{\sqrt{11}}{6} = \frac{x}{h}$$



$x = 4 \sec \theta$ & write $\sqrt{x^2 - 16}$ as a trig. function of θ

$$\sqrt{(4 \sec \theta)^2 - 16} = \sqrt{4^2 \sec^2 \theta - 16}$$

$$= \sqrt{16 \sec^2 \theta - 16} = \sqrt{16(\sec^2 \theta - 1)}$$

$$= \sqrt{16} \sqrt{\sec^2 \theta - 1} = 4 \sqrt{\tan^2 \theta}$$

$$= 4 |\tan \theta| \quad \text{Given } -\frac{\pi}{2} < \theta \leq 0$$

tangent is negative in
QIV



$$\text{So } 4 |\tan \theta|$$

$$= -4 \tan \theta \text{ is } \geq 0$$

$$|-3| = 3$$

$$= -(-3) = 3$$

Bonus: If $0 \leq \theta < \frac{\pi}{2}$, then

$$4 |\tan \theta| = 4 \tan \theta$$

Because tangent ≥ 0

in QI

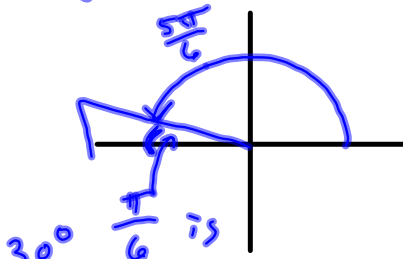


Test on C1 & C2
Monday

Sketch $\theta = \frac{5\pi}{6}$ in standard position.

$\frac{\pi}{3}$ } what's the reference angle for this?

$\frac{\pi}{6}$ is ref. angle.



30° $\frac{\pi}{6}$ is

the reference angle

1 2
- $\sqrt{3}$

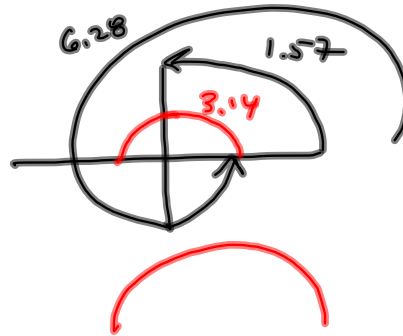
-37.6° is -0.6562 radians, approximately.

$$\left(-37.6^\circ\right)\left(\frac{\pi \text{ rad}}{180^\circ}\right) = \frac{-37.6}{180} \pi \text{ radians}$$

$\frac{\pi \text{ radians}}{180^\circ}$

6.85+7.04+6.92+7	
.19	28
Ans/4	7
37.6*\pi/180	
.6562437987	

$$\approx -0.6562437987$$



$$80^\circ 13' 42'' = 80^\circ + 13' + 42''$$

$$(13') \left(\frac{1^\circ}{60'} \right) = .21\bar{6}$$

$$(42'') \left(\frac{1^\circ}{3600''} \right) = .011\bar{6}$$

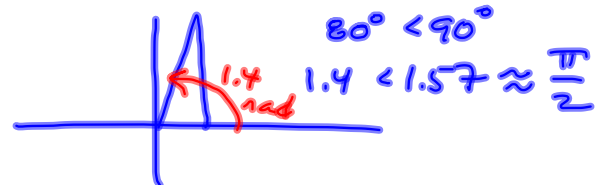
$$= 80^\circ + .21\bar{6}^\circ + .011\bar{6}^\circ$$

$$= 80.228\bar{3}^\circ$$

$$= \left(8.228\bar{3}^\circ \right) \left(\frac{\pi \text{ rad}}{180^\circ} \right)$$

$$\approx 1.40024857 \text{ radians.}$$

Common sense check:



13/60	.2166666667
42/3600	.0116666667
13/60+Ans	.2283333333
.0116666667	
13/60+Ans	.2283333333
80+Ans	80.22833333
Ans*π/180	1.40024857

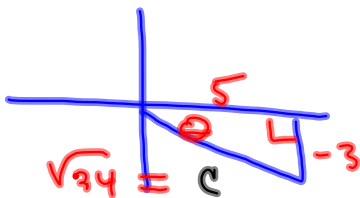
$$\S \quad \sin x = .2$$

$$\text{Then } \sin(-x) = -\sin x \quad \text{odd}$$

$$\S \quad \cos x = .7$$

$$\text{Then } \cos(-x) = .7 \quad \text{even}$$

Find $\sin \theta$, $\cos \theta$, $\tan \theta$ & all the others.



$$5^2 + (-3)^2 = c^2$$

$$25 + 9 = 34 = c^2 \Rightarrow c = \sqrt{34}$$

$$\sin \theta = -\frac{3}{\sqrt{34}}$$

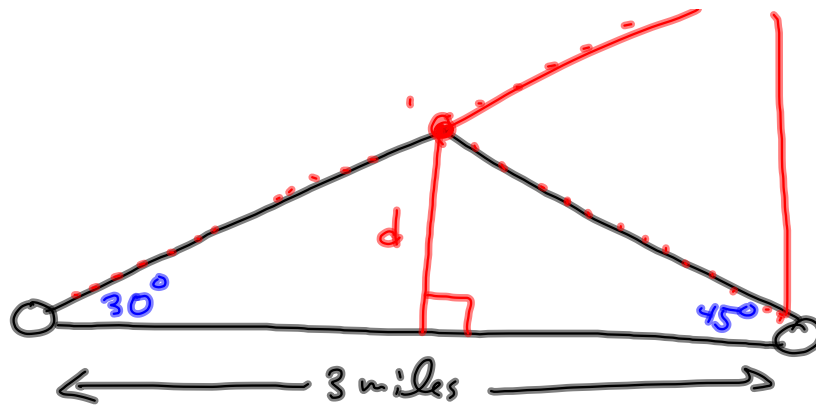
$$\cos \theta = \frac{4}{\sqrt{34}}$$

$$\tan \theta = -\frac{3}{4}$$

$$\csc \theta = -\frac{\sqrt{34}}{3}$$

$$\sec \theta = \frac{\sqrt{34}}{4}$$

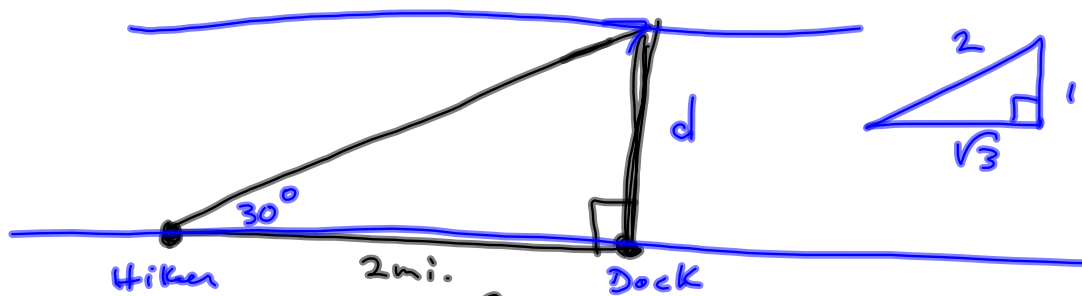
$$\cot \theta = -\frac{4}{3}$$



How far from shore is the boat?

$d = ?$

Chapter 3 Question I thought
we were there, but not quite.



How far across the river

$$\frac{d}{2} = \tan 30^\circ$$

$$d = 2 \tan 30^\circ = \frac{2}{\sqrt{3}} \text{ miles.}$$

$$\approx 1.15 \text{ miles.}$$