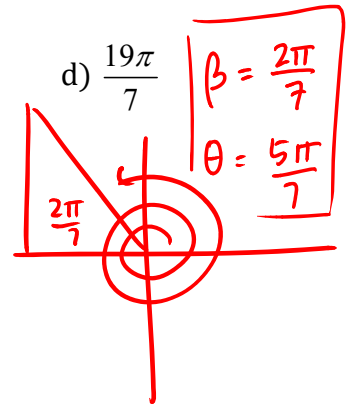
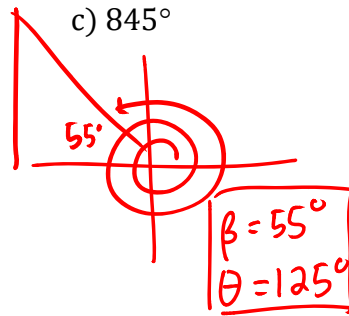
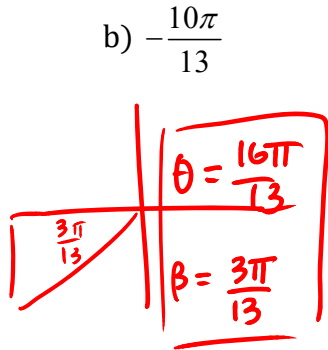
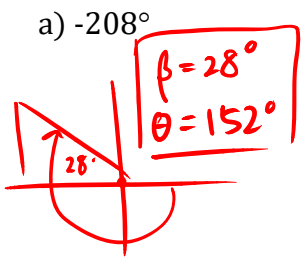


## Chapter 6 Test Review

1. (calc ok) Draw the following angles in standard position. State the reference angle ( $\beta$ ) then state a co-terminal with the given angle between  $0^\circ$  and  $360^\circ$  or  $0$  and  $2\pi$ .



2. (calc ok) Evaluate.

a)  $\sec(22^\circ 42')$

$\frac{1}{\cos(22^\circ 42')} \approx \boxed{1.08}$

b)  $\tan\left(-\frac{6\pi}{11}\right)$

$\boxed{6.96}$

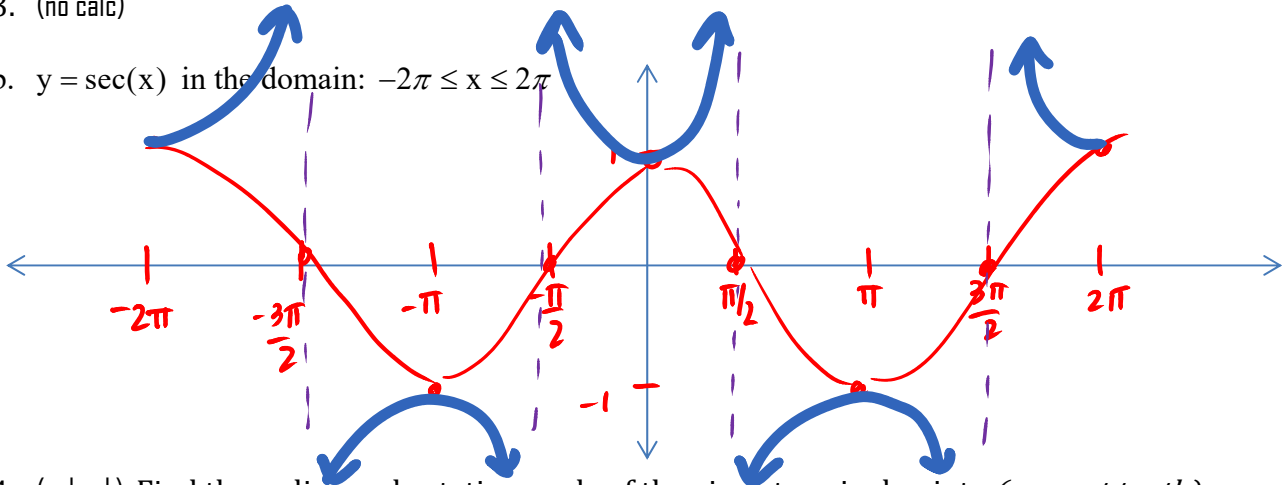
c)  $\csc(.01^\circ)$

$\frac{1}{\sin(.01)} \approx \boxed{5729.58}$

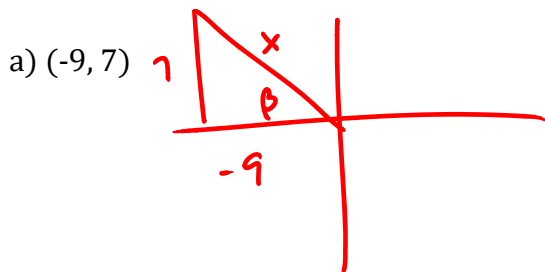
\*

3. (no calc)

b.  $y = \sec(x)$  in the domain:  $-2\pi \leq x \leq 2\pi$



4. (calc ok) Find the radius and rotation angle of the given terminal point. (nearest tenth).



$7^2 + (9)^2 = x^2$   
 $x = \sqrt{130}$

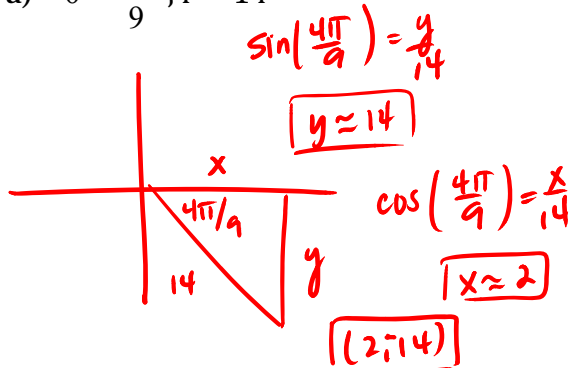
$\beta = \tan^{-1}\left(\frac{7}{9}\right)$

$\beta = \boxed{37.9}$

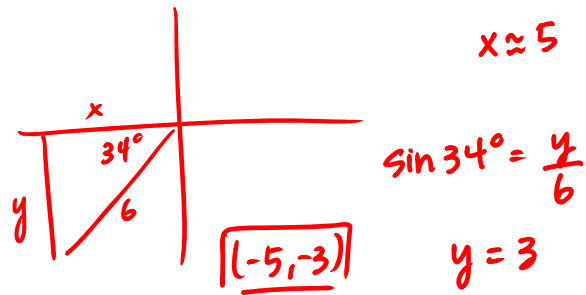
$\theta = \boxed{142.1^\circ}$

5. (calc ok) Find the terminal point given an angle in standard position and a radius. (nearest integer).

a)  $\theta = \frac{14\pi}{9}, r = 14$

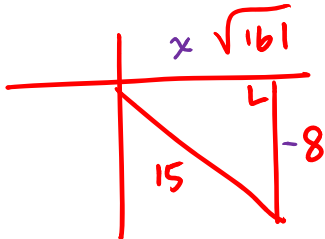


b)  $\theta = 214^\circ, r = 6$   $\cos 34^\circ = \frac{x}{6}$



6. (no calc) Suppose  $\theta$  is an angle in standard position whose terminal side is in the given quadrant. For each function, find the exact values of the required trig ratios.

a)  $\sin \theta = -\frac{8}{15}, \sec \theta > 0$ , find  $\tan \theta$



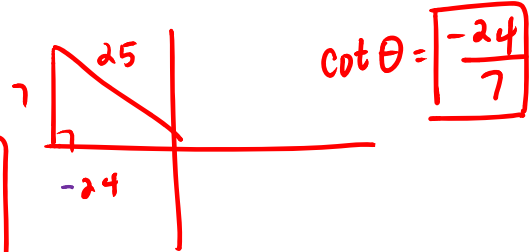
useful... not a triple :)

$2 + 8^2 = 15^2$

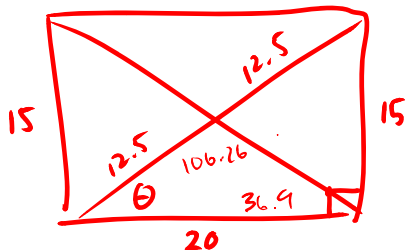
$x = \sqrt{161}$

$\tan \theta = \frac{-8}{\sqrt{161}} = \frac{-8\sqrt{161}}{161}$

b)  $\csc \theta = \frac{25}{7}, \tan \theta < 0$ , find  $\cot \theta$



7. (calc ok) The sides of a rectangle are of length 20 and 15. At what angle do the diagonals intersect? (Give the smaller angle)



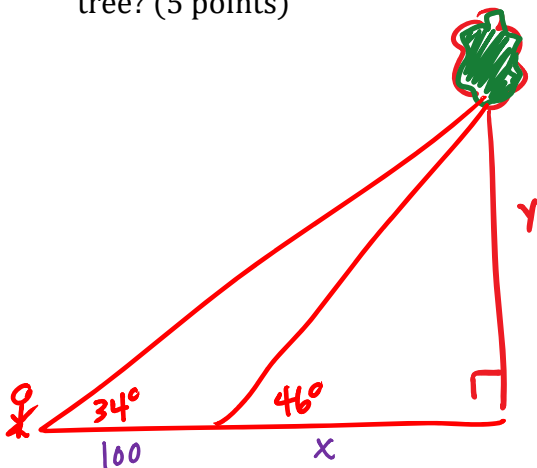
$\tan \theta = \frac{15}{20}$

$\theta = \tan^{-1}\left(\frac{3}{4}\right)$

$\theta = 36.9^\circ$

**(73.74°)**

8. John is trying to find out the height of a tree he is looking at while visiting Redwood National Park. When he first sees the tree, he is looking up at it at an angle of elevation of 34 degrees. He then walks 100 feet closer and realize he is now looking up at an angle of elevation of 46 degrees. How high is the tree? (5 points)



$y = x \tan 46$

$y = (100 + x) \tan 34$

$x \tan 46 = 100 \tan 34 + x \tan 34$

$x \tan 46 - x \tan 34 = 100 \tan 34$

$x (\tan 46 - \tan 34) = 100 \tan 34$

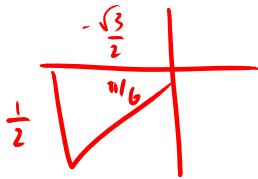
$x = \frac{100 \tan 34}{(\tan 46 - \tan 34)} \approx 186.83$

**(y = 193.47 ft)**

9. (no calc) Evaluate each of the following.

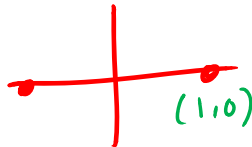
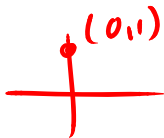
a.  $\cot(-135^\circ) = \boxed{1}$

b.  $5 \cdot \cos\left(\frac{7\pi}{6}\right) = 5 \cdot \left(-\frac{\sqrt{3}}{2}\right) = \boxed{-\frac{5\sqrt{3}}{2}}$



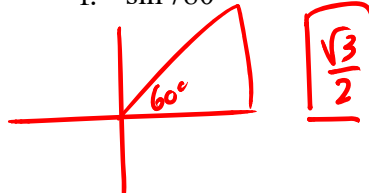
c.  $\tan\left(\frac{5\pi}{2}\right) = \boxed{\text{und}}$

d.  $\sec(-6\pi) = \boxed{1}$



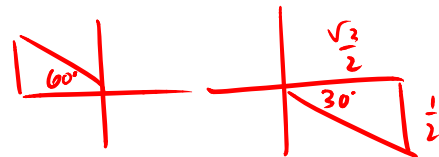
e.  $2 \cdot \tan\left(\frac{3\pi}{4}\right) \sin\left(\frac{5\pi}{6}\right)$

f.  $\sin 780^\circ$



$2 \cdot (-1) \cdot \left(\frac{1}{2}\right) = \boxed{-1}$

g.  $\sin^2 120^\circ + \cos^2 330^\circ$



g.  $\sin^2 135^\circ$

$\left(\frac{\sqrt{2}}{2}\right)^2 = \frac{2}{4} = \boxed{\frac{1}{2}}$

$\left(\frac{\sqrt{3}}{2}\right)^2 + \left(\frac{\sqrt{3}}{2}\right)^2 = \frac{3}{4} + \frac{3}{4} = \boxed{\frac{3}{2}}$

h.  $\sin\left(-\frac{3\pi}{4}\right) \cos\left(\frac{5\pi}{3}\right) + \cos\left(-\frac{\pi}{4}\right) \sin\left(-\frac{2\pi}{3}\right)$

$-\frac{\sqrt{2}}{2} \cdot \frac{1}{2} + \frac{\sqrt{2}}{2} \cdot \frac{-\sqrt{3}}{2}$   
 $-\frac{\sqrt{2}}{4} + \frac{-\sqrt{6}}{4} \Rightarrow \boxed{\frac{-\sqrt{2}-\sqrt{6}}{4}}$

$\left(-\frac{1}{2}, \frac{\sqrt{3}}{2}\right) \left(\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)$