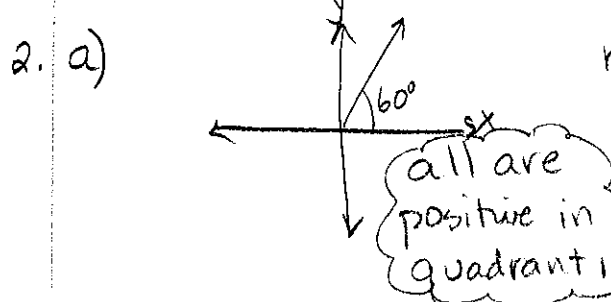
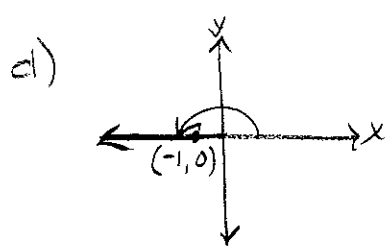
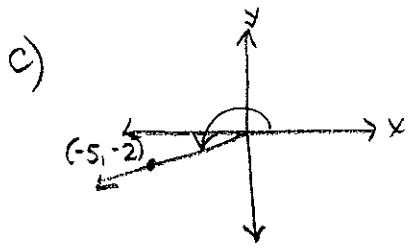
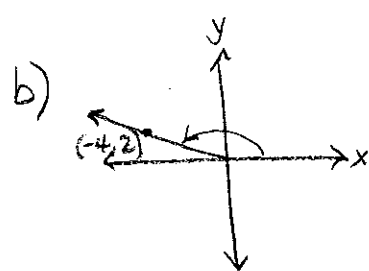
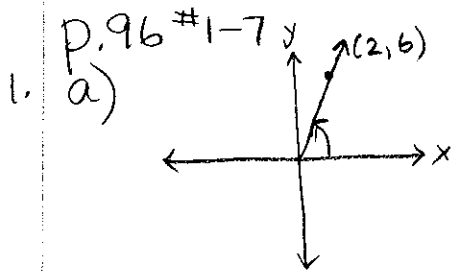
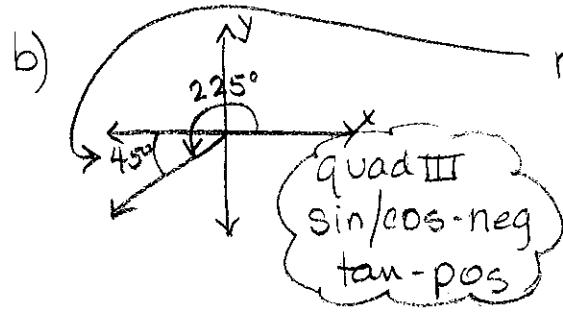


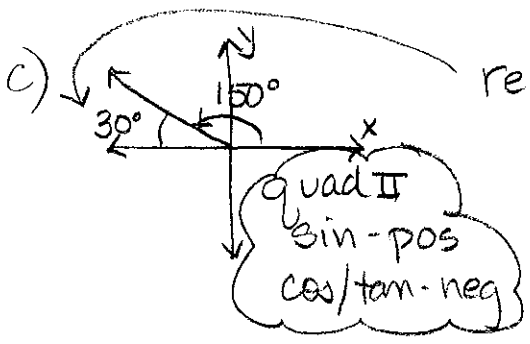
Pre Calculus Math II



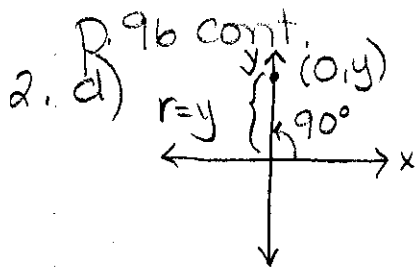
reference angle = 60°
 $\sin 60^\circ = \frac{\sqrt{3}}{2}$ $\tan 60^\circ = \sqrt{3}$
 $\cos 60^\circ = \frac{1}{2}$



reference angle = 45°
 so use values for 45° but use signs for quadrant III
 $\sin 225^\circ = -\frac{1}{\sqrt{2}}$ $\tan 225^\circ = 1$
 $\cos 225^\circ = -\frac{1}{\sqrt{2}}$



reference angle = 30°
 use values for 30° but signs for quadrant II
 $\sin 150^\circ = \frac{1}{2}$ $\tan 150^\circ = -\frac{1}{\sqrt{3}}$
 $\cos 150^\circ = -\frac{\sqrt{3}}{2}$

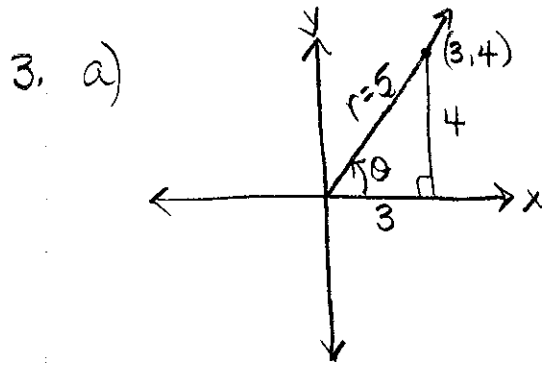


quadrantal angle

$$\sin 90^\circ = \frac{y}{r} = \frac{y}{y} = 1$$

$$\cos 90^\circ = \frac{x}{r} = \frac{0}{y} = 0$$

$$\tan 90^\circ = \frac{y}{x} = \frac{y}{0} = \text{undefined}$$



$$3^2 + 4^2 = r^2$$

$$9 + 16 = r^2$$

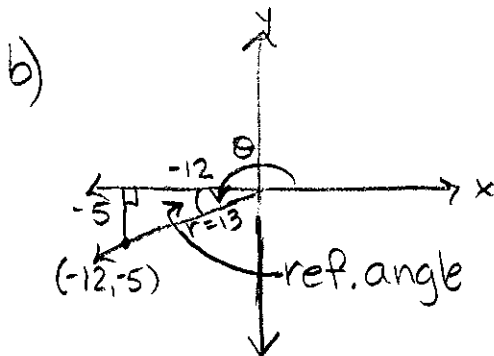
$$25 = r^2$$

$$5 = r$$

$$\sin \theta = \frac{4}{5}$$

$$\cos \theta = \frac{3}{5}$$

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



$$(-5)^2 + (-12)^2 = r^2$$

$$25 + 144 = r^2$$

$$169 = r^2$$

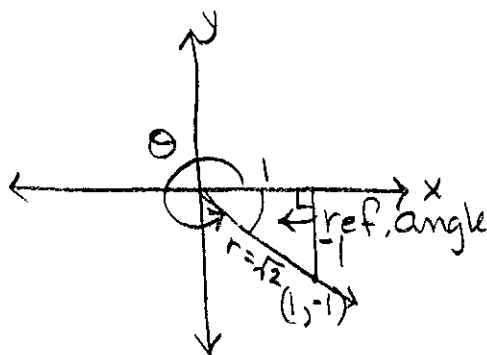
$$13 = r$$

$$\sin \theta = \frac{-5}{13}$$

$$\cos \theta = \frac{-12}{13}$$

$$\tan \theta = \frac{-5}{-12} = \frac{5}{12}$$

oops!
(c) will
be next!



$$1^2 + (-1)^2 = r^2$$

$$1 + 1 = r^2$$

$$2 = r^2$$

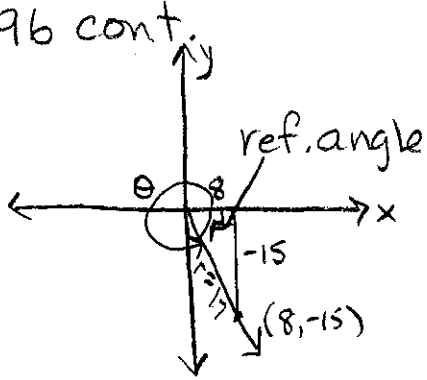
$$\sqrt{2} = r$$

$$\sin \theta = \frac{-1}{\sqrt{2}}$$

$$\cos \theta = \frac{1}{\sqrt{2}}$$

$$\tan \theta = \frac{-1}{1} = -1$$

3. d) P. 96 cont.



$$8^2 + (-15)^2 = r^2$$

$$64 + 225 = r^2$$

$$289 = r^2$$

$$17 = r$$

$$\sin \theta = \frac{-15}{17}$$

$$\cos \theta = \frac{8}{17}$$

$$\tan \theta = \frac{-15}{8}$$

4. a) $\cos \theta < 0 \rightarrow$ must be in quad II or III
 $\sin \theta > 0 \rightarrow$ must be in quad I or II
 so both are in quad II

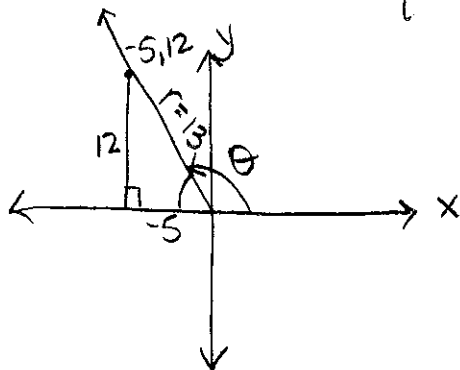
II	s+ c- t-	s+ c+ t+	I
III	s- c- t+	s- c+ t-	IV

- b) $\cos \theta > 0 \rightarrow$ quad I or IV
 $\tan \theta > 0 \rightarrow$ quad I or III
 both in quad I

- c) $\sin \theta < 0 \rightarrow$ quad III or IV
 $\cos \theta < 0 \rightarrow$ quad II or III
 both in quad III

- d) $\tan \theta < 0 \rightarrow$ quad II or IV
 $\cos \theta > 0 \rightarrow$ quad I or IV
 both in quad IV

5. a)



$$12^2 + (-5)^2 = r^2$$

$$144 + 25 = r^2$$

$$169 = r^2$$

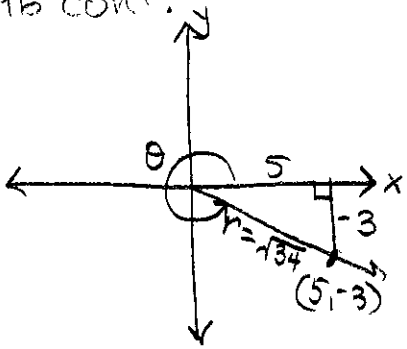
$$13 = r$$

$$\sin \theta = \frac{12}{13}$$

$$\cos \theta = \frac{-5}{13}$$

$$\tan \theta = \frac{12}{-5}$$

5. b) p. 96 cont.



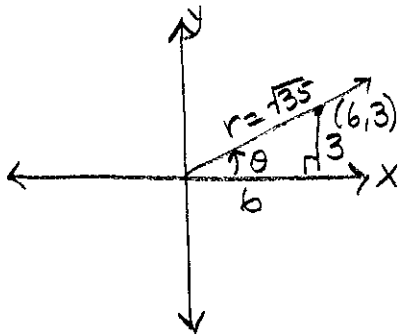
$$\begin{aligned} 5^2 + (-3)^2 &= r^2 \\ 25 + 9 &= r^2 \\ 34 &= r^2 \\ \sqrt{34} &= r \end{aligned}$$

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

$$\cos \theta = \frac{5}{\sqrt{34}}$$

$$\tan \theta = \frac{-3}{5}$$

c)



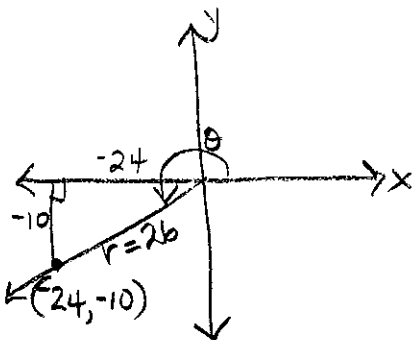
$$\begin{aligned} 6^2 + 3^2 &= r^2 \\ 36 + 9 &= r^2 \\ 45 &= r^2 \\ \sqrt{45} &= r \end{aligned}$$

$$\sin \theta = \frac{3}{\sqrt{45}}$$

$$\cos \theta = \frac{6}{\sqrt{45}}$$

$$\tan \theta = \frac{3}{6} = \frac{1}{2}$$

d)



$$\begin{aligned} (-10)^2 + (-24)^2 &= r^2 \\ 100 + 576 &= r^2 \\ 676 &= r^2 \\ 26 &= r \end{aligned}$$

$$\sin \theta = \frac{-10}{26} = \frac{-5}{13}$$

$$\cos \theta = \frac{-24}{26} = \frac{-12}{13}$$

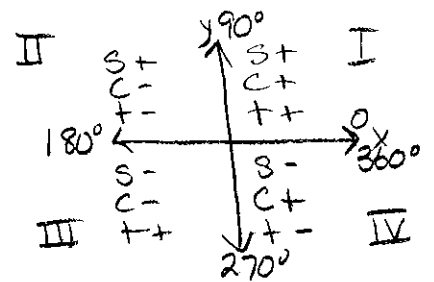
$$\tan \theta = \frac{-10}{-24} = \frac{5}{12}$$

b. a) $\sin 155^\circ \rightarrow$ quadrant II
so positive

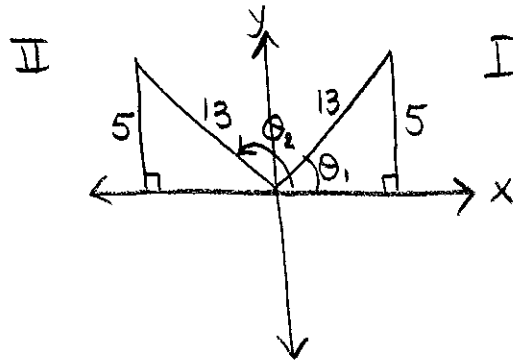
b) $\cos 320^\circ \rightarrow$ quadrant IV
so positive

c) $\tan 120^\circ \rightarrow$ quadrant II
so negative

d) $\cos 220^\circ \rightarrow$ quadrant III
so negative



p. 96 cont.
7. a) $\sin \theta = \frac{5}{13} \rightarrow$ sin is positive in quadrant I or II



b) $\sin \theta = \frac{5}{13}$

$\sin \theta = 0.384615$

$\theta = 23^\circ$

to find an angle
use \sin^{-1} on your calculator

$\theta_1 = 23^\circ$

$\theta_2 = 180^\circ - 23^\circ = 157^\circ$