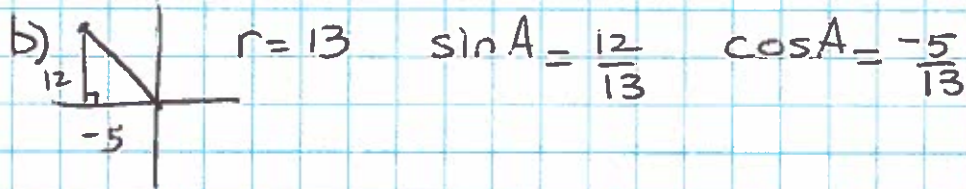
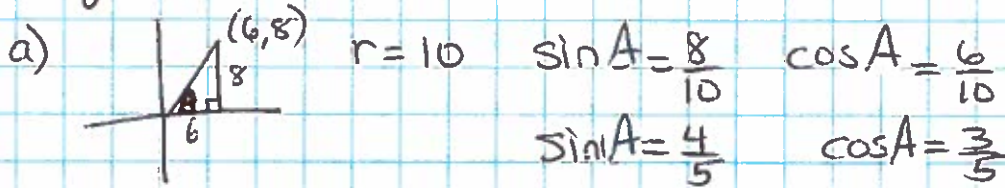


Pg 348 #1 abef + ①  
2 abef + ①,  
6

Pg 281 #1

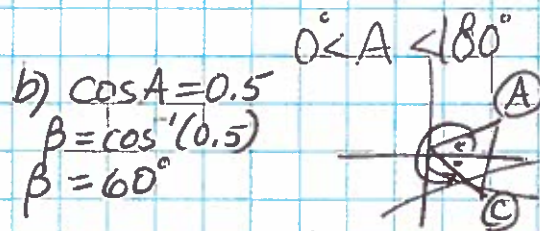
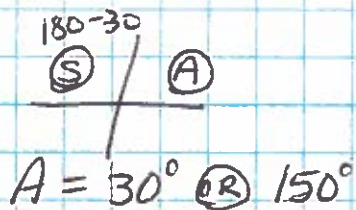


#2 a)  $\cos 144^\circ \doteq -0.8090$     b)  $\sin 105^\circ \doteq 0.9659$     c)  $\sin 167^\circ \doteq 0.2250$     d)  $\cos 92^\circ \doteq -0.0349$

e)  $\cos 134.7^\circ \doteq -0.7034$     f)  $\sin 121.3^\circ \doteq 0.8545$     g)  $\sin 178.8^\circ \doteq 0.0209$     h)  $\cos 113.1^\circ \doteq -0.3923$

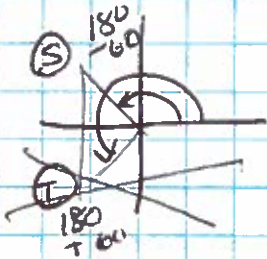
i)  $\sin 156.4^\circ \doteq 0.4003$

#3. a)  $\sin A = 0.5$   
 $\beta = \sin^{-1} 0.5$   
 $\beta = 30^\circ$

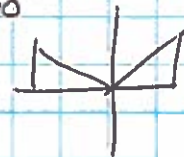


$A = 60^\circ$  OR  $300^\circ$

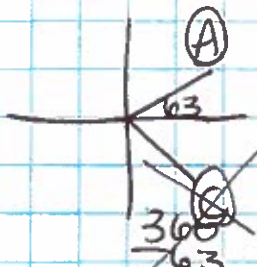
e)  $\cos A = -0.5$   
 $\beta = 60^\circ$   
 $A = 120^\circ$  OR  $240^\circ$



d)  $\sin A = 0.2568$   
 $\beta = 14.88^\circ$   
 $\beta \doteq 15^\circ$   
 $A = 15^\circ$  OR  $165^\circ$



e)  $\cos A = 0.4561$   
 $\beta = \cos^{-1} 0.4561$   
 $\beta \doteq 63^\circ$   
 $A = 63^\circ$  OR  $297^\circ$



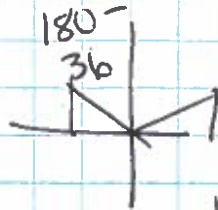
f)  $\cos A = -0.5603$  Ⓢ  
 $\beta = \cos^{-1}(0.5603)$   
 $\beta \doteq 56^\circ$   
 $A = 124^\circ$  OR  $236^\circ$  Ⓡ  
 $180+56$

$0^\circ < A \leq 180^\circ$  was in question!

$$3g) \sin A = 0.5736$$

$$\beta = 35$$

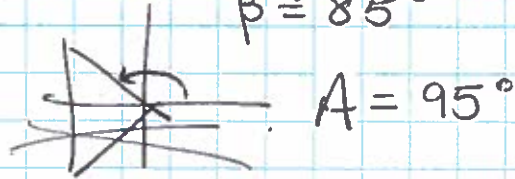
$$A = 35^\circ \text{ or } 144^\circ$$



$$h) \cos A = -0.0876$$

$$\beta = \cos^{-1} 0.0876$$

$$\beta \approx 85^\circ$$



$$i) \sin A = 1$$

$$\beta = \sin^{-1}(1)$$

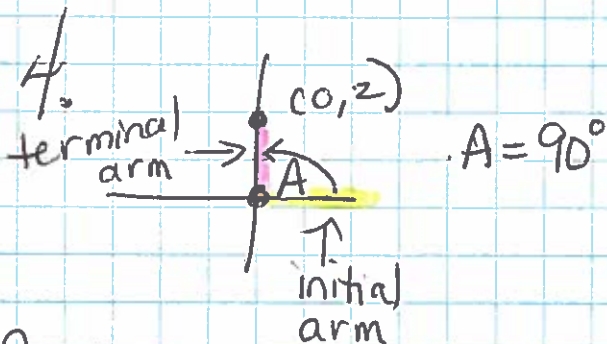
$$\beta = 90^\circ$$

$$\text{So, } A = 90^\circ$$

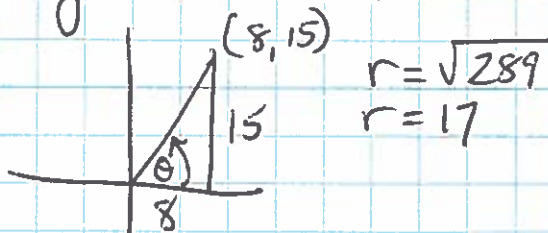
$$j) \cos A = -1$$

$$A = \cos^{-1}(-1)$$

$$A = 180^\circ$$



Pg 348 # 1a



$$r = \sqrt{289}$$

$$r = 17$$

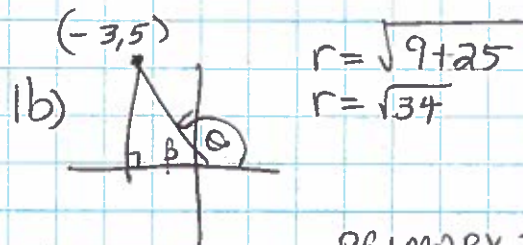
PRIMARY TRIG RATIOS

$$\sin \theta = \frac{15}{17} \quad \cos \theta = \frac{8}{17} \quad \tan \theta = \frac{15}{8}$$

$$\theta = \beta$$

$$\theta = \sin^{-1}(15/17)$$

$$\theta = 61.9^\circ \leftarrow \text{principal angle}$$



$$r = \sqrt{9+25}$$

$$r = \sqrt{34}$$

PRIMARY TRIG RATIOS

$$\sin \theta = \frac{5}{\sqrt{34}} \quad \cos \theta = \frac{-3}{\sqrt{34}} \quad \tan \theta = \frac{-5}{3}$$

$$\beta = \sin^{-1}(5/\sqrt{34})$$

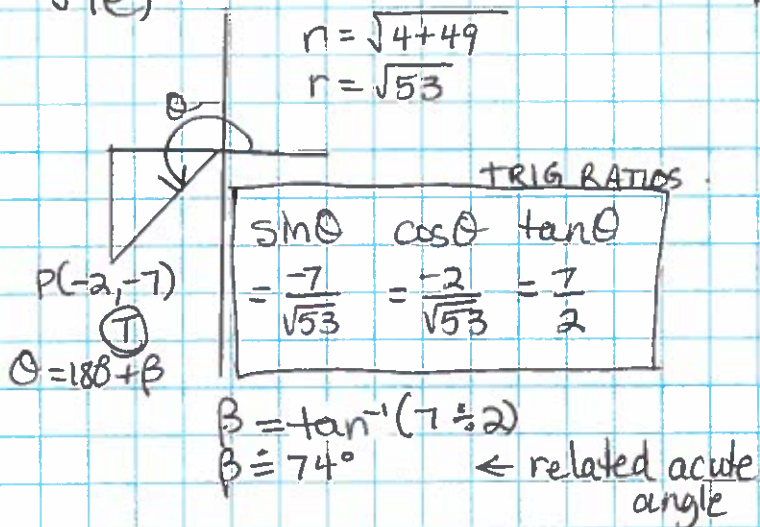
$$\beta = 59^\circ \leftarrow \text{related acute angle}$$

$$\theta = 180^\circ - \beta$$

$$\theta = 180^\circ - 59^\circ$$

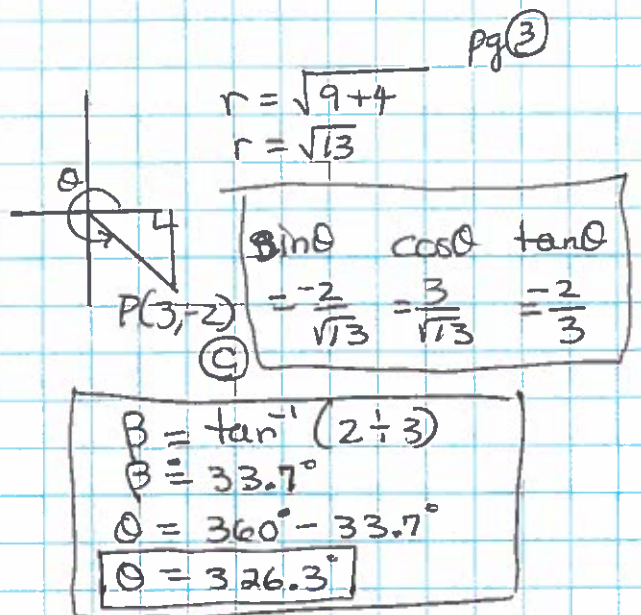
$$\theta = 121^\circ \leftarrow \text{principal angle}$$

Pg 348  
1e)



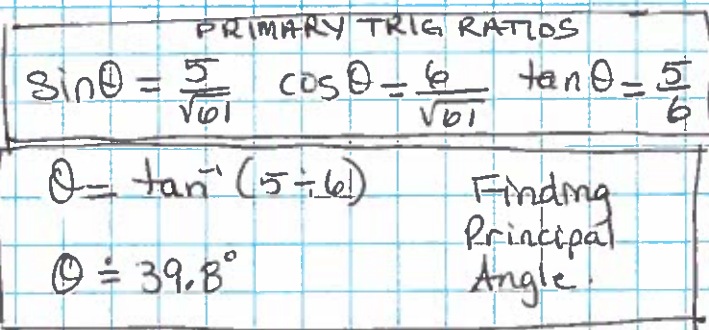
$\theta \approx 180^\circ + 74^\circ$   
 $\theta \approx 254^\circ$  ← principal angle.

1f)

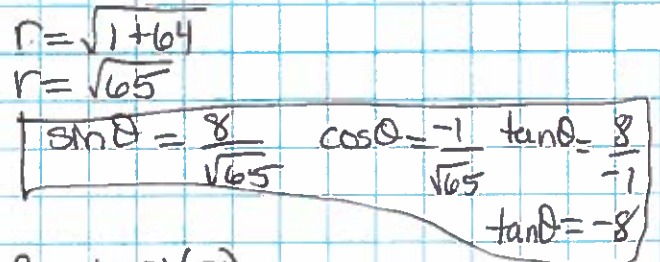


2a)  $P(6, 5)$   $\beta = \theta$  in Quadrant I

$r = \sqrt{36+25}$   
 $r = \sqrt{61}$

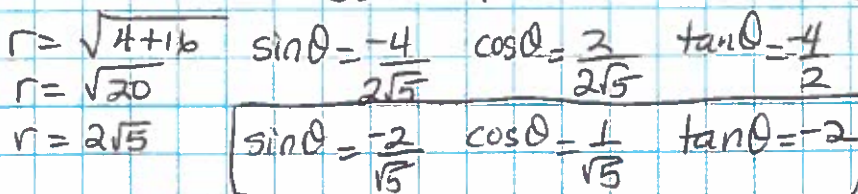


2b)  $P(-1, 8)$   $\theta = 180^\circ - \beta$  in Quadrant II



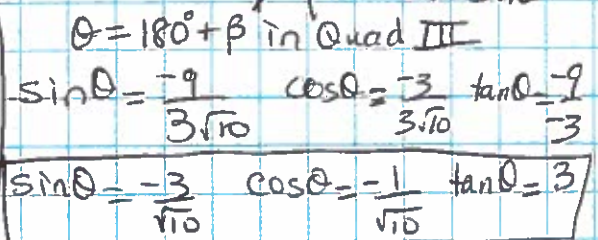
$\beta = \tan^{-1}(8)$   
 $\beta \approx 82.9^\circ$   
 $\theta = 180^\circ - 82.9^\circ$   
 $\theta \approx 97.1^\circ$

2e)  $P(2, -4)$   $\theta = 360^\circ - \beta$  in Quadrant IV



$\beta = \tan^{-1}(2)$   
 $\beta \approx 63.4^\circ$   
 $\theta = 360^\circ - 63.4^\circ$   
 $\theta \approx 296.6^\circ$  ← principal angle


2f)  $P(-3, -9)$   $r = \sqrt{9+81}$   
 $r = \sqrt{90}$   
 $r = 3\sqrt{10}$



$\beta = \tan^{-1}(3)$   
 $\beta \approx 71.6^\circ$   
 $\theta = 180^\circ + 71.6^\circ$   
 $\theta \approx 251.6^\circ$

Pg. 348 #6

pg ④

a)  $\sin \theta = \frac{4}{5}$  Quad II 

$\hookrightarrow$  cos, tan both negative, x is negative.

$$y = 4, r = 5$$


$$x^2 + 4^2 = 5^2$$

$$x^2 = 25 - 16$$

$$x^2 = 9$$

$$x = -3$$

$$\cos \theta = \frac{-3}{5} \quad \tan \theta = \frac{-4}{3}$$

b)  $\cos \theta = -\frac{2}{3}$  Quad III 

$x = -2, r = 3, y = ?$   $\hookrightarrow$  x, y both negative

$$y^2 = r^2 - x^2$$


$$y^2 = 9 - 4$$

$$y^2 = 5$$

$$y = -\sqrt{5}$$

$$\sin \theta = \frac{-\sqrt{5}}{3} \quad \tan \theta = \frac{-\sqrt{5}}{-2}$$

$$\tan \theta = \frac{\sqrt{5}}{2}$$

c)  $\tan \theta = -\frac{5}{2}$ , Quad IV 

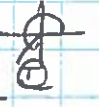
$\hookrightarrow$  y negative, x positive

$$r = \sqrt{2^2 + 5^2}$$

$$y = -5, x = 2$$

$$r = \sqrt{29}$$

$$\sin \theta = \frac{-5}{\sqrt{29}} \quad \cos \theta = \frac{2}{\sqrt{29}}$$

d)  $\sin \theta = -\frac{3}{7}$  Quad III 

$\hookrightarrow$  x, y negative

$$y = -3, r = 7$$

$$x^2 = 49 - 9$$

$$x^2 = 40$$

$$x = -\sqrt{40}$$

$$x = -2\sqrt{10}$$

$$\cos \theta = \frac{-2\sqrt{10}}{7} \quad \tan \theta = \frac{-3}{-2\sqrt{10}}$$

$$\tan \theta = \frac{3}{2\sqrt{10}}$$