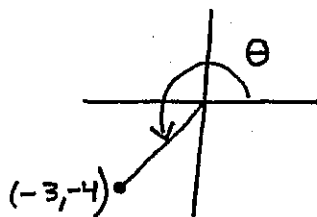


①

ASSIGNMENT # 9
 SOLUTIONS
 201-009-50
 FALL 2009

P. 153

2 (c) $(-3, -4)$



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

$$r^2 = 25$$

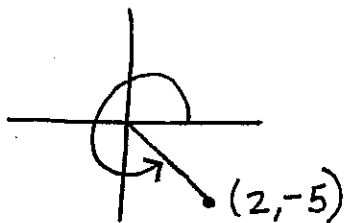
$$r = 5$$

$$\sin \theta = y/r = -4/5$$

$$\cos \theta = x/r = -3/5$$

$$\sin \theta - \cos \theta = -4/5 - (-3/5) = \boxed{-1/5}$$

(e)



$$r^2 = 2^2 + 5^2$$

$$r^2 = 29$$

$$r = \sqrt{29}$$

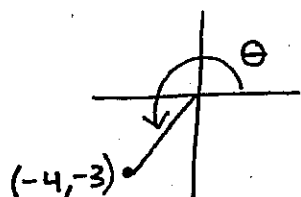
$$\sin \theta = y/r = -5/\sqrt{29}$$

$$\cos \theta = x/r = 2/\sqrt{29}$$

$$\begin{aligned}
 & 6 \cos \theta + 5 \sin \theta \\
 &= 6 \left(\frac{2}{\sqrt{29}} \right) + 5 \left(\frac{-5}{\sqrt{29}} \right) = \frac{12}{\sqrt{29}} - \frac{25}{\sqrt{29}} = \boxed{\frac{-13}{\sqrt{29}}} *
 \end{aligned}$$

* NOTE $\frac{-13}{\sqrt{29}} = \frac{-13 \sqrt{29}}{\sqrt{29} \sqrt{29}} = \frac{-13 \sqrt{29}}{29}$

#4 (a) $\tan \theta = 3/4$, $\sin \theta < 0$



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

$$r^2 = 25$$

$$r = 5$$

$$\sin \theta = y/r = -\frac{3}{5}$$

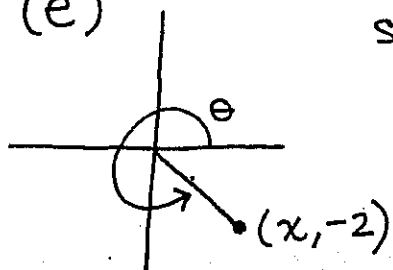
$$\csc \theta = r/y = -\frac{5}{3}$$

$$\cos \theta = x/r = -4/5$$

$$\sec \theta = r/x = -5/4$$

$$\cot \theta = x/y = 4/3$$

(e)



$$\sin \theta = -\frac{2}{3}$$

$$\sec \theta > 0$$

$$r = 3$$

$$y = -2$$

$$r^2 = x^2 + y^2$$

$$3^2 = x^2 + 2^2$$

$$9 - 4 = x^2$$

$$x^2 = 5$$

$$x = \sqrt{5}$$

$$\csc \theta = r/y = 3/-2$$

$$\cos \theta = x/r = \sqrt{5}/3$$

$$\sec \theta = r/x = 3/\sqrt{5}$$

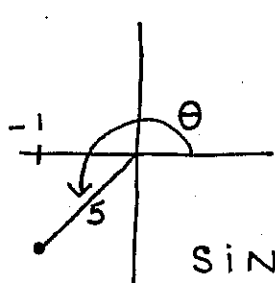
$$\tan \theta = y/x = -2/\sqrt{5}$$

$$\cot \theta = x/y = \sqrt{5}/-2$$

(f) $\sec \theta = -5$
& $\csc \theta < 0$

$$-5 = \frac{r}{x} \quad \text{so} \quad r = 5$$

$$x = -1$$



$$r^2 = x^2 + y^2$$

$$25 = 1 + y^2$$

$$y = \sqrt{24}$$

$$\sin \theta = -\frac{\sqrt{24}}{5}$$

$$\cos \theta = -\frac{1}{5}$$

$$\tan \theta = \sqrt{24}$$

$$\csc \theta = -\frac{5}{\sqrt{24}}$$

$$\sec \theta = -5$$

$$\cot \theta = \frac{1}{\sqrt{24}}$$

(3)

(h)

$$\cot \theta = 0$$

$$\sin \theta = -1$$

$$\frac{x}{y} = 0$$

$$\frac{y}{r} = \frac{-1}{1}$$

$$x = 0$$

$$y = -1$$

$$r = 1$$

$$\sin \theta = -1$$

$$\csc \theta = -1$$

$$\cos \theta = 0/1 = 0$$

$$\sec \theta = \text{undefined}$$

$$\tan \theta = \text{undefined}$$