




4.4 Day 2 p 318 # 5, 6, 7, 17, 21, 59, 61, 81, 83, 92, 93

①  (4,3)
 $r = \sqrt{16+9} = 5$
 $\sin \theta = \frac{3}{5}$
 $\cos \theta = \frac{4}{5}$
 $\tan \theta = \frac{3}{4}$

$\csc \theta = \frac{5}{3}$
 $\sec \theta = \frac{5}{4}$
 $\cot \theta = \frac{4}{3}$

⑥  (8,15)


$\sin \theta = \frac{15}{17}$
 $\cos \theta = \frac{8}{17}$
 $\tan \theta = \frac{15}{8}$
 $\csc \theta = \frac{17}{15}$
 $\sec \theta = \frac{17}{8}$
 $\cot \theta = \frac{8}{15}$

⑦  (21,10)

$r = \sqrt{10^2 + 21^2} = \sqrt{481} = 2\sqrt{120.25}$
 $\begin{matrix} 2 & 58 \\ 2 & 29 \end{matrix}$


$\sin \theta = \frac{10}{2\sqrt{120.25}} = \frac{10\sqrt{29}}{58} = \frac{5\sqrt{29}}{29}$
 $\cos \theta = \frac{21}{2\sqrt{120.25}} = \frac{21\sqrt{29}}{58} = \frac{21\sqrt{29}}{58}$
 $\tan \theta = \frac{10}{21} = \frac{10}{21}$
 $\csc \theta = \frac{29}{5\sqrt{29}} = \frac{\sqrt{29}}{5}$
 $\sec \theta = \frac{29}{21\sqrt{29}} = \frac{\sqrt{29}}{21}$
 $\cot \theta = \frac{21}{10}$

⑪ $\tan \theta = -\frac{15}{8}$ $\sin \theta < 0$

 (8,15)

$\sin \theta = -\frac{15}{17}$
 $\cos \theta = \frac{8}{17}$
 $\tan \theta = -\frac{15}{8}$
 $\csc \theta = -\frac{17}{15}$
 $\sec \theta = \frac{17}{8}$
 $\cot \theta = -\frac{8}{15}$

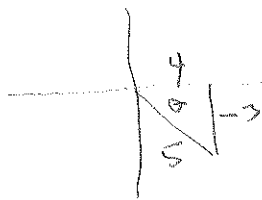
⑫ $\sec \theta = -2$ $\sin \theta > 0$

 (1, sqrt(3))

$\sin \theta = \frac{\sqrt{3}}{2}$
 $\cos \theta = -\frac{1}{2}$
 $\tan \theta = -\sqrt{3}$
 $\csc \theta = \frac{2}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$
 $\sec \theta = -2$
 $\cot \theta = -\frac{1}{\sqrt{3}} = -\frac{\sqrt{3}}{3}$

89) $\sin \theta = \frac{-3}{5}, \text{IV}$

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



$r = \sqrt{9+4} = \sqrt{13}$

6) $\tan \theta = \frac{3}{2}, \text{III}$

$\sec \theta = \frac{1}{\cos \theta} = \frac{1}{-\frac{2}{\sqrt{13}}}$

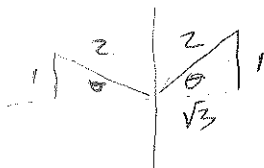
$= -\frac{\sqrt{13}}{2}$



91) a) $\sin \theta = \frac{1}{2}$

$\theta = 30^\circ = \frac{\pi}{6}$

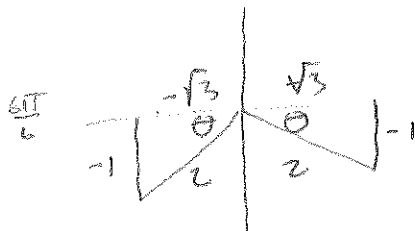
$\theta = 150^\circ = \frac{5\pi}{6}$



b) $\sin \theta = -\frac{1}{2}$

$\theta = 210^\circ = \frac{7\pi}{6}$

$\theta = 330^\circ = \frac{11\pi}{6}$



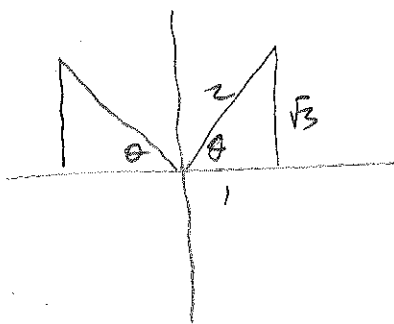
83) a) $\csc \theta = \frac{2\sqrt{3}}{3}$

$= \frac{1}{\sin}$

$\therefore \sin \theta = \frac{3}{2\sqrt{3}} \left(\frac{\sqrt{3}}{\sqrt{3}} \right) = \frac{3\sqrt{3}}{6} = \frac{\sqrt{3}}{2}$

$\theta = 60^\circ = \frac{\pi}{3}$

$\theta = 120^\circ = \frac{2\pi}{3}$



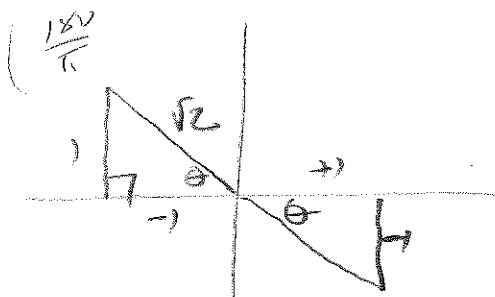
b) $\cot \theta = -1$

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

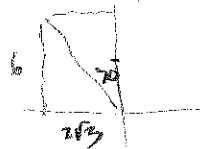
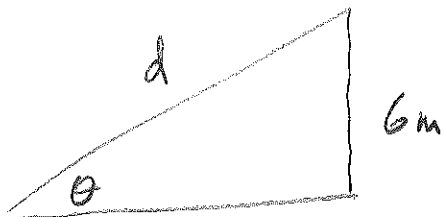
$\therefore \tan \theta = -1$

$\theta = 135^\circ = \frac{3\pi}{4}$

$\theta = 315^\circ = \frac{7\pi}{4}$



92

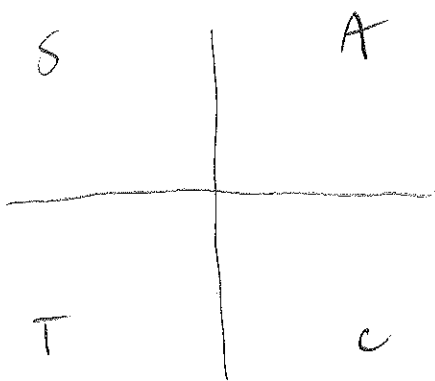


find d when a) $\theta = 30^\circ$
 $\Rightarrow d = 12 \text{ mi}$ (30-60-90)

b) $\theta = 90^\circ$
 $\Rightarrow d = 6 \text{ mi}$

c) $\theta = 120^\circ$
 $\Rightarrow d = 4\sqrt{3} \text{ mi} \approx 6.93 \text{ mi}$

93



F

sec & sin are not
 the same sign

$$\sec = \frac{1}{\cos}, \text{ not } \frac{1}{\sin}$$