6.7 - p.500 11, 13, 17, 43, 51

11.) $2\sin^2\theta - 1 = 0$

$\frac{2\sin^2\theta}{2} = \frac{1}{2} \rightarrow \sin^2\theta = \frac{1}{2} \rightarrow \sqrt{\sin^2\theta} = \pm\sqrt{\frac{1}{2}}$

$\sin\theta = \pm\frac{1}{\sqrt{2}} \rightarrow \sin\theta = \pm\frac{\sqrt{2}}{2}$

$\theta = \frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$

13.) $\sin(3\theta) = -1$ let $u = 3\theta$

$\sin u = -1 \rightarrow u = \frac{3\pi}{2} + 2\pi k \rightarrow \frac{3\theta}{3} = \frac{\frac{3\pi}{2} + 2\pi k}{3}$

$\theta = \frac{3\pi}{6} + \frac{2\pi}{3}k \rightarrow \theta = \frac{\pi}{2} + \frac{2\pi}{3}k$

$k = 0 \rightarrow \theta = \pi/2$

$k = 1 \rightarrow \theta = \frac{\pi}{2} + \frac{2\pi}{3}(1) = \frac{7\pi}{6}$

$k = 2 \rightarrow \theta = \frac{\pi}{2} + \frac{2\pi}{3}(2) = \frac{11\pi}{6}$

$\theta = \frac{\pi}{2}, \frac{7\pi}{6}, \frac{11\pi}{6}$

17.) $\sec\left(\frac{3\theta}{2}\right) = -2 \rightarrow \cos\left(\frac{3\theta}{2}\right) = -\frac{1}{2}$ let $u = \frac{3\theta}{2}$

$\frac{2\pi}{3}\cdot\frac{2}{3}$

$\frac{4\pi}{3}\cdot\frac{2}{3}$

$\cos u = -\frac{1}{2} \rightarrow u = \frac{2\pi}{3} + 2\pi K, \frac{4\pi}{3} + 2\pi K$

$\frac{\frac{3\theta}{2}}{\frac{3}{2}} = \frac{\frac{2\pi}{3} + 2\pi k}{\frac{3}{2}} \rightarrow \theta = \frac{4\pi}{9} + \frac{4\pi}{3}K, \theta = \frac{8\pi}{9} + \frac{4\pi}{3}K$

$\frac{\frac{3\theta}{2}}{3/2} = \frac{\frac{4\pi}{3} + 2\pi k}{3/2}$

$K=0 \rightarrow \frac{4\pi}{9}, \frac{8\pi}{9}$ $K=1 \rightarrow \frac{16\pi}{9}, \frac{20\pi}{9}$ (too large)

43.) $\tan\theta = 5 \rightarrow \theta = \tan^{-1}(5) = \underline{1.37 \text{ RAD}}$

* TANθ is positive in Q1 + Q3

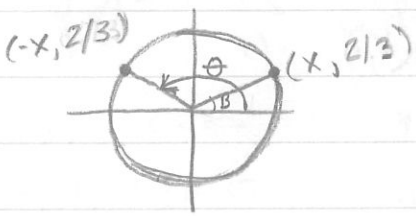
$2\pi - 1.37 \approx \underline{4.91 \text{ RAD}}$ $\{1.37, 4.91\}$

51.) $3\sin\theta - 2 = 0$

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

$\sin\theta = \frac{2}{3} \rightarrow \theta = \sin^{-1}\left(\frac{2}{3}\right) = \underline{0.73 \text{ RAD}}$

Sin is (+) in Q1 + Q2



$\theta = \pi - 0.73 = \underline{2.41 \text{ RAD}}$

$\{0.73, 2.41\}$