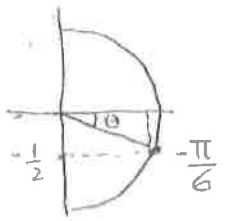
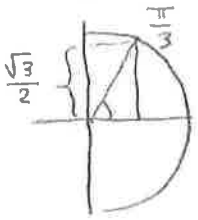
Hammack 6.1

(4) $\sin^{-1}\left(-\frac{1}{2}\right) = \left(\begin{array}{l}\text{angle } -\frac{\pi}{2} \le \theta \le \frac{\pi}{2} \\ \text{with } \sin(\theta) = -\frac{1}{2}\end{array}\right) = \boxed{\frac{-\pi}{6}}$

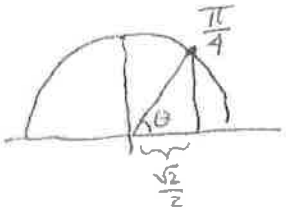


(6) $\sin^{-1}\left(\frac{\sqrt{3}}{2}\right) = \left(\begin{array}{l}\text{angle } -\frac{\pi}{2} \le \theta \le \frac{\pi}{2} \\ \text{with } \sin(\theta) = \frac{\sqrt{3}}{2}\end{array}\right) = \boxed{\frac{\pi}{3}}$

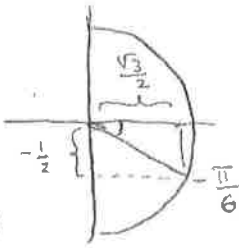


Hammack 6.3

(2) $\cos^{-1}\left(\frac{\sqrt{2}}{2}\right) = \left(\begin{array}{l}\text{angle } 0 \le \theta \le \pi \\ \text{with } \cos(\theta) = \frac{\sqrt{2}}{2}\end{array}\right) = \boxed{\frac{\pi}{4}}$



(8) $\tan^{-1}\left(-\frac{1}{\sqrt{3}}\right) = \left(\begin{array}{l}\text{angle } -\frac{\pi}{2} \le \theta \le \frac{\pi}{2} \\ \text{with } \tan(\theta) = -\frac{1}{\sqrt{2}}\end{array}\right) = \boxed{-\frac{\pi}{6}}$



Because $\tan\left(-\frac{\pi}{6}\right) = \frac{\sin(-\pi/6)}{\cos(-\pi/6)} = \frac{-\frac{1}{2}}{\frac{\sqrt{3}}{2}} = -\frac{1}{\sqrt{3}}$

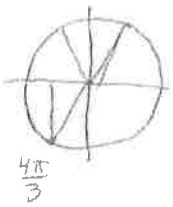
(16) $\sec^{-1}\left(\frac{2}{\sqrt{2}}\right) = \left(\begin{array}{l}\text{angle } 0 \le \theta \le \pi \\ \text{with } \sec(\theta) = \frac{2}{\sqrt{2}}\end{array}\right) = \boxed{\frac{\pi}{4}}$

because $\sec\left(\frac{\pi}{4}\right) = \frac{1}{\cos(\pi/4)} = \frac{1}{\frac{\sqrt{2}}{2}} = \frac{2}{\sqrt{2}}$

(20) $\tan^{-1}\left(\tan\left(\frac{4\pi}{3}\right)\right)$

$= \tan^{-1}\left(\sqrt{3}\right)$

$= \left(\begin{array}{l}\text{angle } -\frac{\pi}{2} \le \theta \le \frac{\pi}{2} \\ \text{with } \tan\theta = \sqrt{3}\end{array}\right) = \boxed{\frac{\pi}{3}}$



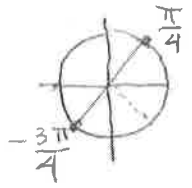
$\tan\left(\frac{4\pi}{3}\right) = \frac{\sin\left(\frac{4\pi}{3}\right)}{\cos\left(\frac{4\pi}{3}\right)} = \frac{-\frac{\sqrt{3}}{2}}{-\frac{1}{2}} = \sqrt{3}$

(26) Find all solutions of $\tan^2(x) + \tan(x) - 2 = 0$ that are in $[-\pi, \pi]$

$$\tan^2(x) + \tan(x) - 2 = 0$$

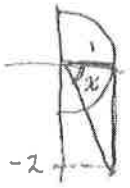
$$(\tan(x) - 1)(\tan(x) + 2) = 0$$

$\tan(x) = 1$



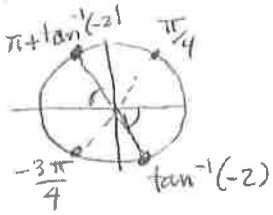
$\tan(x) = -2$

$x = \tan^{-1}(-2) \approx -1.1071487$



↑ this is the radian measure x between $-\frac{\pi}{2}$ and $\frac{\pi}{2}$ for which $\tan(x) = -2$

Here are the solutions between $-\pi$ and π

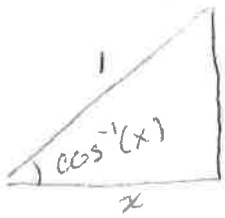


Answer $\boxed{x = \frac{\pi}{4}, -\frac{3\pi}{4}, \pi + \tan^{-1}(-2), \tan^{-1}(-2)}$

$\boxed{\approx 0.7853, -2.35619, 2.034443, -1.10714}$

Hammack 6.5

(2) $\tan(\cos^{-1}(x))$



$= \frac{OPP}{ADJ}$

$= \boxed{\frac{\sqrt{1-x^2}}{x}}$