P. 357 #35

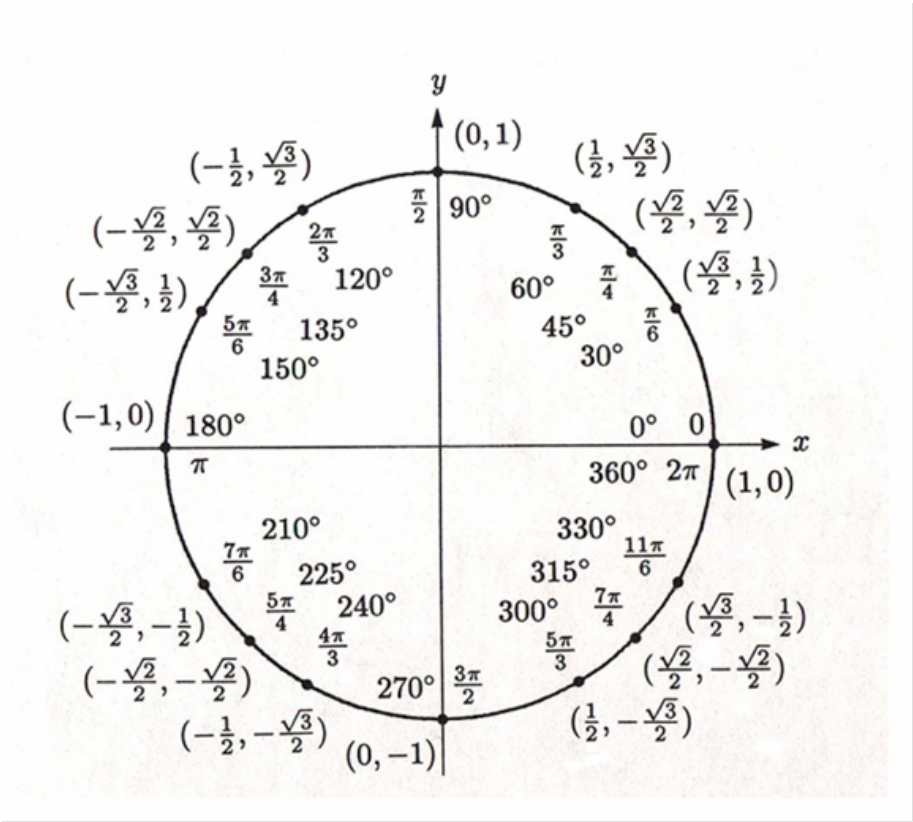
$\sin\left(\frac{\pi}{2} - x\right)\csc x$

$\cos x \csc x$

$\frac{\cos x}{1} \cdot \frac{1}{\sin x} = \frac{\cos x}{\sin x}$

$\cot x$

5-3 Solving Trigonometric Equations



Ex 1 Verify that the x-value is a solution of the equation.

$\sec x - 2 = 0$ $\qquad x = \frac{\pi}{3}$

$\frac{1}{\cos x} - 2$

Ex.2 Solve for x in the interval $[0^o, 360^o)$ and in the interval $[0, 2\pi)$:

$\sin x = \frac{\sqrt{3}}{2}$

Solve

$60^\circ + n \cdot 360^\circ$
$120^\circ + n \cdot 360^\circ$

$x = 60^\circ, 120^\circ$

$x = \frac{\pi}{3}, \frac{2\pi}{3}$

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

Ex.3 Solve for x in the interval $[0, 2\pi)$:

$2 \sin x - 1 = 0$

$2\sin x = 1$

$\sin x = \frac{1}{2}$

$x = \frac{\pi}{6}, \frac{5\pi}{6}$

Ex.4 Solve for x in the interval $[0, 2\pi)$:

$3\tan^2 x - 1 = 0$

$3\tan^2 x = 1$

$\sqrt{\tan^2 x} = \sqrt{\frac{1}{3}}$

$\tan x = \pm\sqrt{\frac{1}{3}} = \pm\frac{\sqrt{1}}{\sqrt{3}} = \frac{1}{\sqrt{3}}$

$\tan x = \pm\frac{1}{\sqrt{3}} = \pm\frac{\sqrt{3}}{3}$

$x = \frac{\pi}{6}, \frac{7\pi}{6}, \frac{5\pi}{6}, \frac{11\pi}{6}$

Ex. 5 Solve for x in the interval $[0, 2\pi)$:

$4\sin^2 x - 3 = 0$

$4\sin^2 x = 3$

$\sin^2 x = \frac{3}{4}$

$\sin x = \pm\sqrt{\frac{3}{4}} = \pm\frac{\sqrt{3}}{\sqrt{4}} = \pm\frac{\sqrt{3}}{2}$

$X = \left\{\frac{\pi}{3}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}\right\}$

Homework
p.376
#1-23 odds