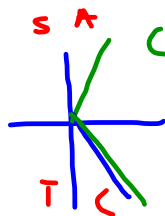


Section 8.3: Solving Trig Equations

ex: $2 \cos x - 1 = 0$
 $\quad \quad \quad +1 \quad +1$

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

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



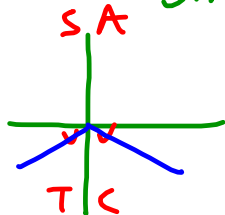
$$x = 60^\circ + n360^\circ \quad n \text{ is any integer}$$

$$x = 300^\circ + n360^\circ$$

$$[0, 2\pi)$$

$$2 \sin(x) + 1 = 0$$

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



$$x = 210^\circ + n360^\circ$$

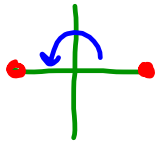
$$x = 330^\circ + n360^\circ$$

Quadratic Type - Factoring

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

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

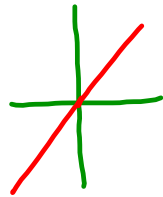
$$\tan(x) = 0 \quad \tan(x) - 1 = 0$$



$$0^\circ + n180^\circ$$

$$~~180^\circ~~$$

$$\tan(x) = 1$$



$$45^\circ$$

$$225^\circ$$

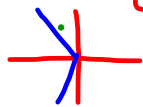
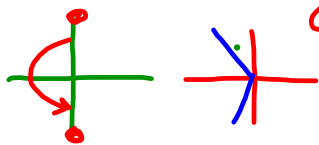
$$x = 45^\circ + n180^\circ$$

$$2 \cos^2(x) + \cos(x) = 0$$

$$\cos(x)(2\cos(x) + 1) = 0$$

$$\cos(x) = 0 \quad 2\cos(x) + 1 = 0$$

$$\cos(x) = -\frac{1}{2}$$



$$x = 120^\circ + n360^\circ$$

$$x = 90^\circ + n180^\circ \quad x = 240^\circ + n360^\circ$$

$$\csc^2 x - \csc x - 2 = 0 \quad \text{like } x^2 - x - 2 = 0$$

$$(\csc x - 2)(\csc x + 1) = 0 \quad \leftarrow (x-2)(x+1) = 0$$

$$\csc x - 2 = 0 \quad \csc x + 1 = 0$$

$$\csc x = 2$$

$$\frac{1}{\sin} \left(\sin x = \frac{1}{2} \right)$$

$$x = 30^\circ$$

$$x = 150^\circ$$

$$\csc x = -1$$

$$(\sin = -1 \text{ too})$$

$$x = 180^\circ$$

$$270^\circ$$

$$+ n360^\circ$$

