

Honors Algebra II/Trig
8.8 Worksheet Day 1

Name: Key

Solve each equation in the domain $[0^\circ, 360^\circ)$.

1. $4 \cos^2 x = 1$

$$\cos^2 x = \frac{1}{4}$$

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

$$x = 60^\circ, 120^\circ, 240^\circ, 300^\circ$$

2. $\tan x \sec x = \tan x$

$$\tan x \sec x - \tan x = 0$$

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

$$\tan x = 0 \quad \sec x = 1$$

$$x = 0^\circ, 180^\circ$$

3. $\cos x + 2 = 3 \cos x$

$$2 = 2 \cos x$$

$$1 = \cos x$$

$$x = 0^\circ$$

4. $2 \cos^2 x - 5 \cos x + 2 = 0$

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

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

$$x = 60^\circ, 300^\circ$$

$$5. \sin^2 x + 5\sin x + 6 = 0$$

$$(\sin x + 3)(\sin x + 2) = 0$$

$$\sin x = -3 \quad \sin x = -2$$

no solution

$$6. 3 - 3\sin x - 2\cos^2 x = 0$$

$$3 - 3\sin x - 2(1 - \sin^2 x) = 0$$

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

$$2\sin^2 x - 3\sin x + 1 = 0$$

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

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

$$x = 30^\circ, 150^\circ, 90^\circ$$