

Name: KEY

Date: \_\_\_\_\_ Period: \_\_\_\_\_

Solve each equation over the interval  $[0, 2\pi)$ . If necessary, round answers to the nearest hundredths.

1.)  $6\sin^2 x - 3 = 2\sin^2 x$

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

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

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

$$X = \pi/3, 2\pi/3, 4\pi/3, 5\pi/3$$

3.)  $\cot x - 2 = 0$

$$\cot x = 2$$

$$\tan x = 1/2$$

$$x' = .46$$

$$X = .46, 3.61$$

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2.)  $3\cos x - 5 = 7\cos x - 4$

$$-1 = 4\cos x$$

$$\cos x = -1/4$$

$$x' = 1.32$$

$$X = 1.82, 4.46$$

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4.)  $5\csc^2 x - 1 = 4$

$$5\csc^2 x = 5$$

$$\sqrt{\csc^2 x} = \sqrt{1}$$

$$\csc x = \pm 1$$

$$X = \pi/2, 3\pi/2$$

5.)  $5\tan x = 3\tan x$

$$2\tan x = 0$$

$$\frac{y}{x} \tan x = 0$$

$$X = 0, \pi$$

6.)  $-3\sec^2 x + 4 = -2$

$$-3\sec^2 x = -6$$

$$\sqrt{\sec^2 x} = \sqrt{2}$$

$$\sec x = \pm \sqrt{2}$$

$$X = \pi/4, 3\pi/4, 5\pi/4, 7\pi/4$$

Solve each equation over the interval  $[0^\circ, 360^\circ)$ . If necessary, round answers to the nearest hundredths.

7.)  $\tan^2 x - 3 = 0$

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

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

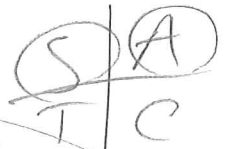
$$x = 60^\circ, 120^\circ, 240^\circ, 300^\circ$$

8.)  $20 \sin x + 1 = 3$

$$20 \sin x = 2$$

$$\sin x = 1/10$$

$$x' = 5.74^\circ$$



$$x = 5.74^\circ, 174.26^\circ$$

9.)  $\cos x - 7 = 0$

$$\cos x = 7$$

NO solution

10.)  $8 \tan x + 13 = 3 \tan x + 2$

$$5 \tan x = -11$$

$$\tan x = -11/5$$

$$x' = 65.56^\circ$$



$$x = 114.44^\circ$$

$$\&$$

$$294.44^\circ$$

11.)  $\sin x - 3 = 5 \sin x$

$$-3 = 4 \sin x$$

$$\sin x = -3/4$$

$$x' = 48.59^\circ$$



$$x = 228.59^\circ$$

&

$$311.41^\circ$$

12.)  $3 \sec^2 x - 4 = 0$

$$\sqrt{\sec^2 x} = \sqrt{\frac{4}{3}}$$

$$\sec x = \pm \frac{2}{\sqrt{3}}$$

$$\cos x = \pm \frac{\sqrt{3}}{2}$$

$$x = 30^\circ, 150^\circ, 210^\circ, 330^\circ$$