

PreCalculus  
Practice Quiz

NAME \_\_\_\_\_

Solve over  $[0, 2\pi)$ .

1.  $2\sin x \sec x = \sqrt{3} \sec x$

$$2\sin x \sec x - \sqrt{3} \sec x = 0$$

$$\sec x (2\sin x - \sqrt{3}) = 0$$

$$\sec x = 0 \quad 2\sin x - \sqrt{3} = 0$$

$$\cos x = \phi \quad 2\sin x = \sqrt{3}$$

$$\text{(Not Possible)} \quad \sin x = \frac{\sqrt{3}}{2}$$

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

2.  $\sin^2 x + 2\cos x = 2$

$$1 - \cos^2 x + 2\cos x - 2 = 0$$

$$-\cos^2 x + 2\cos x - 1 = 0$$

$$\cos^2 x - 2\cos x + 1 = 0$$

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

$$\cos x - 1 = 0$$

$$\cos x = 1$$

$$x = 0\pi$$

3.  $\sin x (\csc x - 2) = 0$

$$\sin x = 0 \quad \csc x - 2 = 0$$

$$x = 0\pi, \pi$$

$$\csc x = 2$$

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

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

4.  $3\csc^2 2x = 4$

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

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

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

$$2x = \frac{\pi}{3}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}, \frac{7\pi}{3}, \frac{8\pi}{3}, \frac{10\pi}{3}, \frac{11\pi}{3}$$

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$$x = \frac{\pi}{6}, \frac{\pi}{3}, \frac{2\pi}{3}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{4\pi}{3}, \frac{5\pi}{3}, \frac{11\pi}{6}$$

5.  $\tan x = \sec x$

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

$$\frac{\sin x}{\cos x} - \frac{1}{\cos x} = 0$$

$$\frac{\sin x - 1}{\cos x} = 0$$

$$\sin x - 1 = 0$$

$$\sin x = 1$$

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

NO SOLUTIONS

or look at your unit circle,  
Tangent Never equals Secant.