

NAME: _____

P.I. A2.A.68: Solve trigonometric equations for all values of the variable from 0-360 degrees

1. Solve this equation graphically. List the solutions in the interval from 0 to 2π .
 $3\sin x = 1$

2. Solve. Find all solutions from 0° to 360° . $3\cos 2x + 4\cos x = -1$

[A] $70^\circ 32'$, 180° , $289^\circ 28'$

[B] $70^\circ 32'$, $160^\circ 32'$, 180° , $250^\circ 32'$, $340^\circ 32'$

[C] $70^\circ 32'$, $289^\circ 32'$

[D] 0° , $70^\circ 32'$, 180° , $250^\circ 28'$

Solve. Find all solutions from 0 to 2π .

3. $\tan^2 \theta = \frac{3}{2} \sec \theta$ [A] $\frac{\pi}{4}, \frac{7\pi}{4}$ [B] $\frac{\pi}{3}, \frac{5\pi}{3}$ [C] $\frac{\pi}{6}, \frac{11\pi}{6}$ [D] none of these

4. $\tan^2 \theta = -\frac{\sqrt{3}}{6} \sec \theta$ [A] $\frac{\pi}{6}, \frac{11\pi}{6}$ [B] $\frac{5\pi}{6}, \frac{7\pi}{6}$ [C] $\frac{\pi}{3}, \frac{5\pi}{3}$ [D] none of these

5. $\tan^2 \theta = \frac{\sqrt{2}}{2} \sec \theta$ [A] $\frac{5\pi}{6}, \frac{7\pi}{6}$ [B] $\frac{3\pi}{4}, \frac{5\pi}{4}$ [C] $\frac{2\pi}{3}, \frac{4\pi}{3}$ [D] none of these

6. $\tan^2 \theta = -\frac{\sqrt{2}}{2} \sec \theta$ [A] $\frac{3\pi}{4}, \frac{5\pi}{4}$ [B] $\frac{\pi}{4}, \frac{7\pi}{4}$ [C] $\frac{\pi}{3}, \frac{5\pi}{3}$ [D] none of these

7. $\tan^2 \theta = \frac{\sqrt{3}}{6} \sec \theta$ [A] $\frac{5\pi}{6}, \frac{7\pi}{6}$ [B] $\frac{\pi}{6}, \frac{11\pi}{6}$ [C] $\frac{2\pi}{3}, \frac{4\pi}{3}$ [D] none of these

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9. Explain how the function $y = \sin x$ is related to the function $y = \sin^{-1} x$.

[1] 0.34 and 2.80 _____

[2] A _____

[3] B _____

[4] B _____

[5] D _____

[6] A _____

[7] B _____

[8] C _____

Answers may vary. Sample: the sine function maps an angle in degrees or radians to the ratio of two sides of a right triangle. The inverse sine function maps a ratio of two sides

[9] to an angle. _____