5.9 Solving Trig Equations Part 1 Name: _____

Solve each equation on the indicated domain, show all of your work!

1. $\tan\theta + \sqrt{3} = 0$ $\theta \in [0^o, 360^o)$

$120°, 300°$

2. $2\cos x + \sqrt{3} = 0$ $x \in [0, 2\pi)$

$\frac{5\pi}{6}, \frac{7\pi}{6}$

3. $2\sin(\theta + 82^o) = -1$ $\theta \in [0^o, 360^o)$

$128°, 248°$

4. $\sec(\theta + 74^o) = -2$ $\theta \in [0^o, 360^o)$

$46°, 166°$

5. $4\cos^2 x = 1$ $x \in [0, 2\pi)$

$\frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}$

6. $4\sin^2 x = 3$ $x \in \{\text{real numbers}\}$

$\frac{\pi}{3} + 2\pi n$ $\frac{4\pi}{3} + 2\pi n$

$\frac{2\pi}{3} + 2\pi n$ $\frac{5\pi}{3} + 2\pi n$

7. $\tan x - \sqrt{3} = 2\tan x$ $x \in \{\text{real numbers}\}$

$\frac{2\pi}{3} + \pi n$

8. $\cos x + 2 = 3\cos x$ $x \in \{\text{real numbers}\}$

$0 + 2\pi n$

9. $\sin^2 x + 3\cos^2 x = 0$ $x \in [0, 2\pi)$

NO SOLUTION

10. $\sin 2x \cos x - \cos 2x \sin x = -\frac{\sqrt{3}}{2}$ $x \in [0, 2\pi)$

$\frac{4\pi}{3}, \frac{5\pi}{3}$

11. $\sin 2x \sin x + \cos x = 0$ $x \in [0, 2\pi)$

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

12. $\cos 4x \cos x - \sin 4x \sin x = 0$ $x \in [0, 2\pi)$

$\frac{\pi}{10}, \frac{3\pi}{10}, \frac{\pi}{2}, \frac{7\pi}{10}, \frac{9\pi}{10}, \frac{11\pi}{10}, \frac{13\pi}{10},$

$\frac{3\pi}{2}, \frac{17\pi}{10}, \frac{19\pi}{10}$