Chapter 14 Review **Name** _____ **Assignment #** _____

Show your work on a separate piece of paper for full credit.

Solve each of the following equations for $0 \le x < 2\pi$. Check for extraneous solutions

1. $\cos x = 2\sin x$
2. $\sin x + 2 = 3$
3. $2\sec x + 1 = \sec x + 3$
4. $\sec^2 x - 2 = -1$
5. $\left(\cot x - \sqrt{3}\right)\left(2\sin^2 x\right) = 0$
6. $\cos^2 x - \sqrt{3}\cos x = 0$

Remember: sin x can't be zero for cot x to exist.

7. $\cos^2 x + 2\cos x + 1 = 0$
8. $\tan x \cos x - \cos x = 0$

Remember: cos x can't be zero for tan x to exist.

Find the general solutions to each of the following equations.

9. $2\sin\theta - 1 = \csc\theta$
10. $9\cos^2\theta - 6\cos\theta = -1$
11. $\tan\theta - \cot\theta = 0$
12. $\sec^2\theta = 2\tan\theta + 4$
13. $\cos^2\theta = \sin^2\theta + 1$
14. $\csc^2\theta - 2\cot\theta = 0$
15. $\tan^3\theta = 3\tan\theta$
16. $2\cos^4\theta = \cos^2\theta$
17. $\sin^2\theta\cos\theta = \cos\theta$
18. $2\tan^2\theta\sin\theta - \tan^2\theta = 0$

Prove each identity

19. $\dfrac{1}{\sec^2 x} + \dfrac{1}{\csc^2 x} = 1$
20. $\dfrac{\sec x}{\sin x} - \dfrac{\sin x}{\cos x} = \cot x$
21. $\tan^2\theta - \sin^2\theta = \tan^2\theta\sin^2\theta$
22. $\dfrac{\sin x}{1-\cos x} + \dfrac{1-\cos x}{\sin x} = 2\csc x$
23. $\cos^2\theta + \tan^2\theta\cos^2\theta = 1$
24. $\dfrac{1}{\tan x + \cot x} = \dfrac{\sin x}{\sec x}$
25. $\dfrac{1 - 2\cos^2\theta}{\sin\theta\cos\theta} = \tan\theta - \cot\theta$
26. $1 - \cot^4\theta = 2\csc^2\theta - \csc^4\theta$

Review sine, cosine and tangent graph (how to graph and how to find the equations from graphs)

Review worksheet 14-6/14-7.

Answers:

1. 0.46; 3.61

2. $\frac{\pi}{2}$

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

4. 0, π

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

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

7. π

8. $\frac{\pi}{4}, \frac{5\pi}{4}$

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

10. $1.23 + 2n\pi;$ $5.05 + 2n\pi$

11. $\frac{\pi}{4} + \frac{n\pi}{2}$

12. $\frac{3\pi}{4} + n\pi;$ $1.249 + n\pi$

13. nπ

14. $\frac{\pi}{4} + n\pi$

15. $\frac{n\pi}{3}$

16. $\frac{\pi}{2} + n\pi$ $\frac{\pi}{4} + \frac{n\pi}{2}$

17. $\frac{\pi}{2} + n\pi$

18. nπ; $\frac{\pi}{6} + 2n\pi$ $\frac{5\pi}{6} + 2n\pi$