PreCalculus
WS: 5.1 – 5.3 Review

Name_____

Date_____Block_____

All work should be done on separate paper.

In 1 – 10, verify the identity.

1. $\left(\sec^2 x - 1\right)\left(\cos^2 x\right) = \sin^2 x$

2. $\cot^2 x \csc^2 x - \cot^2 x = \cot^4 x$

3. $\sec^2 x \csc^2 x = \sec^2 x + \csc^2 x$

4. $\dfrac{\sec x}{\sin x} - \dfrac{\sin x}{\cos x} = \cot x$

5. $\dfrac{\cos x}{1 + \sin x} + \tan x = \sec x$

6. $\dfrac{\csc(-x)}{\sec(-x)} = -\cot x$

7. $\dfrac{\sec x \sin x}{\tan x + \cot x} = \sin^2 x$

8. $\csc^4 x - \cot^4 x = 2\csc^2 x - 1$

9. $\csc^2 x \tan^2 x - 1 = \tan^2 x$

10. $\dfrac{\cos x + 1}{\sin^3 x} = \dfrac{\csc x}{1 - \cos x}$

In 11 – 20, find the general solutions to each equation and then list all solutions on the interval $[0, 2\pi)$. When necessary, round decimals to the nearest thousandth.

11. $2\sin x - 1 = 0$

12. $\sin x = \sqrt{3} - \sin x$

13. $\tan x + 1 = 0$

14. $\dfrac{1}{2}\sec x - 1 = 0$

15. $\cos^2 x + \sin x = 1$

16. $2\cos 2x - \sqrt{2} = 0$

17. $\cos^2 x - 3\cos x + 1 = 0$

18. $\tan^2 3x = 3$

19. $\tan^2 x - \tan x - 12 = 0$

20. $\sec^2 x + 6\tan x + 4 = 0$