PreCalculus **Name_____**

WS: 5.2 **Date_____Block_____**

Verify each identity. All work should be done on separate paper.

1. $\dfrac{\cot^3\theta}{\csc\theta} = \cos\theta\left(\csc^2\theta - 1\right)$

2. $\sec x - \cos x = \tan x \sin x$

3. $\dfrac{\sin x - \cos x}{\sin x \cos x} = \sec x - \csc x$

4. $\tan x\left(1 - \cot x\right) = \tan x - 1$

5. $\sec^2 x + \sec x \tan x = \dfrac{1}{1 - \sin x}$

6. $\dfrac{\tan x \cos x}{\sin x} = 1$

7. $\dfrac{\sin x + \cos x}{\sin x} = 1 + \cot x$

8. $\dfrac{1}{\sec x \tan x} = \csc x - \sin x$

9. $\left(\sin x + \cos x\right)^2 + \left(\sin x - \cos x\right)^2 = 2$

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

11. $\tan x + \cot x = \sec x \csc x$

12. $\dfrac{\cos y}{1 - \sin y} = \sec y + \tan y$

13. $\dfrac{\cot^2\theta}{1 + \csc\theta} = \dfrac{1 - \sin\theta}{\sin\theta}$

14. $\tan^4 x = \tan^2 x \sec^2 x - \tan^2 x$

15. $\dfrac{\csc x}{\cot x + \tan x} = \cos x$

16. $\dfrac{1}{\sin y - 1} - \dfrac{1}{\sin y + 1} = -2\sec^2 y$