Math 3 Name_____

Unit 4.2 Fundamental Identities Advanced PRACTICE

Period____

Verify each identity.

1) $\dfrac{\csc^2 x}{\sec^3 x} = \dfrac{\cos x}{\sec^2 x - 1}$

2) $\dfrac{\sin^2 x}{\cos^2 x \cot x} = \tan x \cdot \left(\sec^2 x - 1\right)$

3) $\dfrac{\sin x - \tan x}{\tan x} = \tan^2 x + \cos x - \sec^2 x$

4) $\dfrac{\tan^2 x + 1}{\sin^2 x} = \dfrac{\csc^2 x}{\cos^2 x}$

5) $\dfrac{\cot x}{\sec^2 x + \csc^2 x} = \cos^3 x \sin x$

6) $\cot^2 x \csc^2 x \sin^2 x = \csc^2 x - 1$

7) $\dfrac{\cot^2 x}{\csc^2 x + \sec^2 x} = \dfrac{\cos^3 x}{\sec x}$

8) $\dfrac{\cot^2 x - \csc^2 x}{\cot x} = -\sec x \sin x$

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

10) $\dfrac{\cot^2 x \sec^2 x}{\cos^2 x} = \dfrac{\tan^2 x + 1}{\sin^2 x}$

11) $\csc^2 x \cot x \tan x = \cot^2 x + 1$

12) $\csc^2 x - 1 = \dfrac{\cot x \csc x}{\sec x}$

13) $\dfrac{\csc^2 x - 1}{\csc x} = \csc x \cos^2 x$

14) $\dfrac{\cos^2 x}{1 - \csc^2 x} = -\sin^2 x$

15) $-\csc x \sin^2 x = \dfrac{\tan^2 x - \sec^2 x}{\csc x}$

16) $\dfrac{1}{\cos^2 x \csc^2 x} = \sec^2 x - 1$

17) $\dfrac{\csc x}{\csc^2 x - 1} = \sin x \sec^2 x$

18) $\cot^2 x + \sec x \cos x = \dfrac{1}{\sin^2 x}$