Math 3 Name_____

Unit 4.1 Fundamental Identities Basic PRACTICE

Period____

Verify each identity.

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

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

3) $\dfrac{1}{1 + \csc x} = \dfrac{\sin x}{\sin x + 1}$

4) $\dfrac{\cot x}{\cot x + 1} = \dfrac{\cos x}{\sin x + \cos x}$

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

6) $\dfrac{\cos x}{\sec x \cot^2 x} = \sin^2 x$

7) $\dfrac{\cot^2 x}{\sin x} = \dfrac{\csc x}{\tan^2 x}$

8) $\tan x \csc x = \dfrac{1}{\cos x}$

9) $\sec x \cdot (1 + \sec x) = \dfrac{1 + \cos x}{\cos^2 x}$

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

11) $\dfrac{\sin x + \csc x}{\csc x} = 1 + \sin^2 x$

12) $\dfrac{\csc x + 1}{\csc^2 x} = \sin x \cdot (\sin x + 1)$

13) $\dfrac{1 - \csc x}{\csc x} = \sin x - 1$

14) $\tan^2 x \cot^3 x = \dfrac{\cos x}{\sin x}$

15) $\dfrac{\sec^2 x + \cos x}{\sec^2 x} = 1 + \cos^3 x$

16) $1 + \sec x = \dfrac{1 + \cos x}{\cos x}$

17) $\dfrac{\cot x - 1}{\csc x} = \cos x - \sin x$

18) $\dfrac{\csc x}{1 - \csc x} = \dfrac{1}{\sin x - 1}$

19) $\dfrac{\sec x + 1}{\sec x} = 1 + \cos x$

20) $\dfrac{\sec x - \tan x}{\sec x} = 1 - \sin x$

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

22) $\sec^2 x - \csc^2 x = \tan^2 x - \cot^2 x$

23) $\dfrac{\sec x + 1}{\sec^2 x} = \cos x \cdot (1 + \cos x)$

24) $\dfrac{1 + \cot^2 x}{\sin x} = \csc^3 x$