

Verifying Trig Expressions

Date _____ Period _____

Verify each identity.

1)
$$\frac{\sin x}{\sec^2 x \tan x} = \cos^3 x$$

2)
$$\sec x - \tan^2 x = \frac{\cos x - \sin^2 x}{\cos^2 x}$$

3)
$$\csc^2 x \sin x = \frac{1}{\sin x}$$

4)
$$\cos x + \sec x = \frac{1 + \cos^2 x}{\cos x}$$

5)
$$\tan^2 x \cot x = \frac{\sin x}{\cos x}$$

6)
$$\frac{\sin x + \csc x}{\csc^2 x} = \sin x \cdot (\sin^2 x + 1)$$

7)
$$\frac{\csc x - 1}{\csc x} = 1 - \sin x$$

8)
$$\frac{\cos x}{\tan^2 x} = \frac{\cot^2 x}{\sec x}$$

9)
$$\frac{1 + \csc x}{\csc^2 x} = \sin x \cdot (\sin x + 1)$$

10)
$$\frac{\sec x \cdot (1 + \sec x)}{\tan^2 x} = \frac{\cos x + 1}{\sin^2 x}$$

11)
$$\frac{1 - \csc^2 x}{\csc^2 x} = -\cos^2 x$$

12)
$$\cot x \tan^3 x = \sec^2 x - 1$$

13)
$$\sin x \cdot (\sec^2 x - 1) = \frac{1}{\cot^2 x \csc x}$$

14)
$$-\tan^2 x \csc^2 x = -\tan^2 x - 1$$

15)
$$\tan^2 x \csc x = \sin x \cdot (1 + \tan^2 x)$$

$$16) -\sin^2 x \sec^2 x = 1 - \sec^2 x$$

$$17) -\tan x \csc x = \frac{\cot^2 x - \csc^2 x}{\cos x}$$

$$18) \frac{\tan^3 x}{\sec x} = \sin x \cdot (\sec^2 x - 1)$$

$$19) \frac{\tan^2 x + 1}{\cot x} = \frac{\tan x}{\cos^2 x}$$

$$20) \csc^2 x + \sec^2 x = \frac{\sec^2 x}{\sin^2 x}$$

$$21) \sin x \csc x + \cot^2 x = \frac{1}{\sin^2 x}$$

$$22) \frac{\sec^2 x \cos^2 x}{\cot^2 x} = \sec^2 x - 1$$

$$23) \frac{\csc^2 x + \sec^2 x}{\csc^2 x} = \frac{\sec x}{\cos x}$$

$$24) -\csc^2 x \cos^2 x = 1 - \csc^2 x$$

$$25) \sin x \csc x - \sec^2 x = -\tan^2 x$$

$$26) \csc^2 x - 1 + \csc x = \frac{\cos^2 x + \sin x}{\sin^2 x}$$

$$27) \cos^2 x (1 - \sec^2 x) = -\sin^2 x$$

$$28) \sec^2 x + \csc^2 x = \frac{\sec^2 x}{\sin^2 x}$$

$$29) \frac{\csc x}{\tan^2 x + 1} = \frac{\cos^2 x}{\sin x}$$

$$30) \frac{\sec x}{\tan x} = \frac{\csc x}{\sin^2 x + \cos^2 x}$$