Name: _____

Verifying Trigonometric Identities

1) Write each expression in terms of sine and cosine and simplify it.

1) $\sec\theta\cot\theta\sin\theta$

2) $\cot\theta\sin\theta$

3) $\sin^2\theta\left(\csc^2\theta-1\right)$

4) $\left(\sec\theta-1\right)\left(\sec\theta+1\right)$

5) $\cos\theta\csc\theta$

6) $\cot^2\theta\left(1+\tan^2\theta\right)$

7) $\dfrac{\cos\theta+\sin\theta}{\sin\theta}$

8) $\left(1-\cos\theta\right)\left(1+\sec\theta\right)$

9) $\dfrac{1-\sin^2\theta}{1+\cot^2\theta}$

10) $\sec\theta-\cos\theta$

11) $\dfrac{\cos^2\theta-\sin^2\theta}{\sin\theta\cos\theta}$

12) $\left(\sec\theta+\csc\theta\right)\left(\cos\theta-\sin\theta\right)$

13) $\dfrac{1+\tan^2\theta}{1+\cot^2\theta}$

14) $\sin\theta\left(\csc\theta-\sin\theta\right)$

2) Perform each indicated operation and simplify the result

1) $\dfrac{\sec x}{\csc x}+\dfrac{\csc x}{\sec x}$

2) $\cot\theta+\dfrac{1}{\cot\theta}$

3) $\cos b\left(\sec b+\csc b\right)$

4) $\dfrac{1}{\csc^2 x}+\dfrac{1}{\sec^2 x}$

5) $\tan s\left(\cot s+\csc s\right)$

6) $\dfrac{1}{\sin a-1}-\dfrac{1}{\sin a+1}$

7) $\dfrac{\cos x}{\sin x}+\dfrac{\sin x}{1+\cos x}$

8) $\left(1+\sin t\right)^2+\cos^2 t$

9) $\dfrac{\cos x}{\sec x}+\dfrac{\sin x}{\csc x}$

10) $\left(1+\tan s\right)^2-2\tan s$

11) $\dfrac{1}{1+\cos x}-\dfrac{1}{1-\cos x}$

12) $\left(\sin a-\cos a\right)^2$