Name _____ Class _____ Date _____

Practice 14-1

Trigonometric Identities

Verify each identity.

1. $\sin\theta \sec\theta \cot\theta = 1$
2. $\csc\theta = \cot\theta \sec\theta$
3. $\frac{\sin\theta}{\csc\theta} = \sin^2\theta$
4. $\cos\theta \csc\theta \tan\theta = 1$
5. $\sin\theta \tan\theta + \cos\theta = \sec\theta$
6. $\frac{\csc\theta}{\cot\theta} = \sec\theta$
7. $\sec\theta = \tan\theta \csc\theta$
8. $\tan\theta + \cot\theta = \sec\theta \csc\theta$
9. $\tan^2\theta + 1 = \sec^2\theta$
10. $\cos\theta \cot\theta + \sin\theta = \csc\theta$
11. $\frac{\sec\theta}{\csc\theta} = \tan\theta$
12. $\sec\theta \cot\theta = \csc\theta$
13. $\sec^2\theta - \tan^2\theta = 1$
14. $\sec\theta = \csc\theta \tan\theta$
15. $\frac{\sin\theta + \cos\theta}{\sin\theta} = 1 + \cot\theta$
16. $\cos\theta (\sec\theta - \cos\theta) = \sin^2\theta$
17. $\cot\theta \sec\theta = \csc\theta$
18. $(1 - \sin\theta)(1 + \sin\theta) = \cos^2\theta$

Simplify each trigonometric expression.

19. $1 - \sec^2\theta$
20. $\frac{\sec\theta}{\tan\theta}$
21. $\csc\theta \tan\theta$
22. $\sec\theta \cos^2\theta$
23. $\csc^2\theta - \cot^2\theta$
24. $1 - \sin^2\theta$
25. $\tan\theta \cot\theta$
26. $\cos\theta \cot\theta + \sin\theta$
27. $\cos\theta \tan\theta$
28. $\frac{\sin\theta \cot\theta}{\cos\theta}$
29. $\sec\theta \tan\theta \csc\theta$
30. $\sec\theta \cot\theta$
31. $\frac{\sin\theta}{\csc\theta} + \frac{\cos\theta}{\sec\theta}$
32. $\frac{\tan\theta \csc\theta}{\sec\theta}$
33. $\cot^2\theta - \csc^2\theta$
34. $\frac{\cot\theta}{\csc\theta}$