Trigonometric Identities

1. Simplify each trigonometric expression by following the indicated direction
(Similar to p.215 #9-10)

Rewrite in terms of sine and cosine functions:

$$\frac{\sec\theta}{\csc\theta}$$

2. Simplify each trigonometric expression by following the indicated direction
(Similar to p.215 #11-12)

Multiply:

$$\frac{\tan\theta}{1-\sec\theta}\cdot\frac{1+\sec\theta}{1+\sec\theta}$$

3. Simplify each trigonometric expression by following the indicated direction
(Similar to p.215 #13-14)

Rewrite over a common denominator:

$$\frac{1}{1-\sin\theta}+\frac{1}{1+\sin\theta}$$

4. Simplify each trigonometric expression by following the indicated direction
(Similar to p.215 #17-18)

Factor and Simplify:

$$\frac{2\sin^2\theta+7\sin\theta+5}{3\sin^2\theta+2\sin\theta-1}$$

5. Establish each identity
(Similar to p.216 #19-98)

$$\cot x\sin x=\cos x$$

6. Establish each identity
(Similar to p.216 #19-98)

$$\frac{\cos^2 x}{\sin x} + \sin x = \csc x$$

7. Establish each identity
(Similar to p.216 #19-98)

$$(1 - \sin^2 x)(1 + \tan^2 x) = 1$$

8. Establish each identity
(Similar to p.216 #19-98)

$$\frac{3\cos^2 x + 2\cos x - 1}{\sin^2 x} = \frac{1 - 3\cos x}{\cos x - 1}$$

9. Establish each identity
(Similar to p.216 #19-98)

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

10. Establish each identity
(Similar to p.216 #19-98)

$$\frac{\tan^2 x}{\sec x + 1} = \frac{1 - \cos x}{\cos x}$$

11. Establish each identity
(Similar to p.216 #19-98)

$$\frac{\tan x + \sin x}{\tan x - \sin x} = \frac{\sec x + 1}{\sec x - 1}$$

12. Establish each identity
(Similar to p.216 #19-98)

$$\tan^2 x - \sin^2 x = \tan^2 x \sin^2 x$$

13. Establish each identity
(Similar to p.216 #19-98)

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

14. Establish each identity
(Similar to p.216 #19-98)

$$\frac{1}{\sec x - \tan x} = \sec x + \tan x$$

15. Establish each identity
(Similar to p.216 #19-98) NEXT TIME

$$\frac{\sin x}{1 + \cos x} + \frac{1 + \cos x}{\sin x} = 2 \csc x$$

16. Establish each identity
(Similar to p.216 #19-98)

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

17. Establish each identity
(Similar to p.216 #19-98)

$$\frac{\cot x - \sec x}{\sin x \cos x} = \csc^2 x - \csc x \sec^2 x$$

18. Establish each identity
(Similar to p.216 #19-98)

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