

More Trig Identities

Math 130

Find an equivalent expression, usually a single trig function of x or a power of a trig function of x .

1. $\frac{\sec x}{1 + \tan^2 x}$

2. $\frac{1}{1 + \tan^2 x} + \sin^2 x$

3. $\sqrt{1 + \tan^2 x}$

4. $\sqrt{(1 + \tan^2 x)^2}$

5. $\sqrt{(\sec x + 1)(\sec x - 1)}$

6. $(\sec^2 x - 1) \cos x \csc x$

7. $\frac{\sec^4 x - 2 \sec^2 x + 1}{\tan^2 x} + 1$

8. $\frac{1 - \sin x}{\sin^2 x} \cdot \frac{1 - \cos x}{\cos^2 x}$ (This example will have an answer with two trig functions of x .)

9. $\frac{1}{1 - \sin^2 x} - 1$

10. $(\tan x + 1)^2 - \sec^2 x$

11. $\frac{1 + \tan^2 x}{1 + \cot^2 x}$

12. $\sqrt{(\sec x + 1)(\sec x - 1)(1 + \sin x)(1 - \sin x)}$

Answers follow.

Answers.

1. $\cos x$

2. 1

3. $|\sec x|$

4. $\sec^2 x$

5. $|\tan x|$

6. $\tan x$

7. $\sec^2 x$

8. $\frac{1}{(1 + \sin x)(1 + \cos x)}$

9. $\tan^2 x$

10. $2 \tan x$

11. $\tan^2 x$

12. $|\sin x|$