

Simplifying Trigonometric Expressions

Simplify each of the following.

1. $\sec x \cos x$
 1

2. $\frac{\sin(-x)}{\cos(-x)}$ $-\tan x$

3. $\tan^2 x - \sec^2 x$
 -1

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

5. $\cot x \sin x$
 $\cos x$

6. $\frac{\sin\left(\frac{\pi}{2} - x\right)}{\cos\left(\frac{\pi}{2} - x\right)}$ $\cot x$

7. $\sin x \sec x$
 $\tan x$

8. $\cos^2 x (\sec^2 x - 1)$ $\sin^2 x$

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

10. $\cot x \sec x$ $\csc x$

11. $\sec^4 x - \tan^4 x$
 $\sec^2 x + \tan^2 x$

12. $\frac{\cos^2\left(\frac{\pi}{2} - x\right)}{\cos x}$ $\sin x \cdot \tan x$

13. $\tan \theta \csc \theta$
 $\sec \theta$

14. $\sin \theta (\csc \theta - \sin \theta)$ $\cos^2 \theta$

15. $\cos \beta \tan \beta$
 $\sin \beta$

16. $\sec \alpha \frac{\sin \alpha}{\tan \alpha}$ 1

17. $\frac{\cot x}{\csc x}$

18. $\frac{\csc \theta}{\sec \theta}$ $\cot \theta$

19. $\sec^2 x (1 - \sin^2 x)$

20. $\frac{1}{\tan^2 x + 1}$ $\cos^2 \theta$