

Chapter 5 Review Problems

Show that each identity is valid.

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

2. $\sec x - \cos x = \sin x \tan x$

3. $\sec x + \sec x \tan^2 x = \sec^3 x$

Odd & Even Functions

4. $f(x)$ is an odd function. If $f(-10) = 12$, what is $f(10)$?
5. $f(x)$ is an odd function. If $f(2) = -9$, what is $f(-2)$?
6. $f(x)$ is an even function. If $f(3) = 89$, what is $f(-3)$?
7. $f(x)$ is an even function. If $f(-11) = -17$, what is $f(11)$?
8. Which trigonometric functions are even?
9. Which trigonometric functions are odd?

Using Trig Identities

10. Find $\sin 75^\circ$ by using the two angle identities and the fact that $75 = 30 + 45$. Use exact values.
11. Calculate $\cos 2A$ for the angle A that has a $\sin A = 4/5$.

12. Calculate $-2\sin 15^\circ \sin 75^\circ$. Use exact values.

13. Calculate $\sin \frac{1}{2}x$ for the angle that has $\cos x = -3/7$, for $180^\circ < x < 270^\circ$.

14. Express $2 \sin 23^\circ \cos 81^\circ$ as a sum or difference with positive arguments.

15. Express $\sin 62^\circ - \sin 36^\circ$ as a product.

Solve the following equations.

16. $\cos x \cos 18^\circ - \sin x \sin 18^\circ = \frac{1}{2}$

17. $\sin^2 x - 1 = 0$

18. $\sin x - \cos^2 x - 1 = 0$