

Simplify each expression. (Examples 4 and 5)

22. $\csc x \sec x - \tan x$

24. $\sec x \cot x - \sin x$

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

28. $\frac{\sec x \csc x - \tan x}{\sec x \csc x}$

30. $\cot x - \csc^2 x \cot x$

23. $\csc x - \cos x \cot x$

25. $\frac{\tan x + \sin x \sec x}{\csc x \tan x}$

27. $\frac{\csc x \cos x + \cot x}{\sec x \cot x}$

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

31. $\cot x - \cos^3 x \csc x$

Simplify each expression. (Example 6)

$$32. \frac{\cos x}{\sec x + 1} + \frac{\cos x}{\sec x - 1}$$

$$33. \frac{1 - \cos x}{\tan x} + \frac{\sin x}{1 + \cos x}$$

$$34. \frac{1}{\sec x + 1} + \frac{1}{\sec x - 1}$$

$$35. \frac{\cos x \cot x}{\sec x + \tan x} + \frac{\sin x}{\sec x - \tan x}$$

$$36. \frac{\sin x}{\csc x + 1} + \frac{\sin x}{\csc x - 1}$$

Rewrite as an expression that does not involve a fraction.

(Example 7)

38. $\frac{\sin x}{\csc x - \cot x}$

40. $\frac{\cot x}{\sec x - \tan x}$

42. $\frac{3 \tan x}{1 - \cos x}$

44. $\frac{\sin x}{1 - \sec x}$

46. $\frac{5}{\sec x + 1}$

39. $\frac{\csc x}{1 - \sin x}$

41. $\frac{\cot x}{1 + \sin x}$

43. $\frac{2 \sin x}{\cot x + \csc x}$

45. $\frac{\cot^2 x \cos x}{\csc x - 1}$

47. $\frac{\sin x \tan x}{\cos x + 1}$