

Product and Quotient Rules of Derivatives (3.3)**Finding the Derivative of Common Functions:** Differentiate the function.

1. $f(x) = \sin x$

2. $f(x) = \cos x$

3. $f(x) = \ln x$

4. $f(x) = 5^x$

Product Rule**Finding the Derivative Using the Product Rule:** Differentiate the function.

5. $f(x) = x^2 \ln x$

6. $f(x) = \frac{1}{2}x^3 + 4x^2 \cos x$

Quotient Rule

Finding the Derivative Using the Quotient Rule: Differentiate the function.

7. $f(x) = \frac{3x+2}{x^4-5x}$

8. $f(x) = \frac{3e^x}{7\cos x - \sqrt[3]{x}}$

Finding a Tangent Line: Find an equation of the tangent line to the curve at the given point. Verify your answer by graphing the function and tangent line to the right.

9. $f(x) = \frac{x^2 - x - 2}{x + 3}$ at $(-1, 0)$

