

Find the derivative of each function below using either the product rule or the quotient rule. Simplify each answer.

1) $f(x) = 3x^2(4 - 5x)$

2) $y = \frac{5x^2}{x^3 + 1}$

Find the derivative of each function below using either the product rule or the quotient rule. Do not simplify answers.

3) $f(x) = \frac{\sqrt[3]{x} + 2}{\sqrt[3]{x^2} + x}$

4) $f(x) = x^5(3x^2 + 5x)(\sqrt{x} + 3)$

5) $f(x) = \left(\frac{2}{\sqrt{x}} \right) (3x^4 + 5x)$

Find the derivative of each function below using any method you choose. Simplify each answer.

6)
$$f(x) = \frac{2x+1}{3x-1}$$

7)
$$f(x) = \frac{2}{x^2}$$

8)
$$f(x) = \frac{3\sqrt{x}}{2}$$

9)
$$f(x) = (x^2 + 1)\left(x + 5 + \frac{1}{x}\right)$$

10)
$$f(x) = \frac{1+x-4x^2}{x}$$