

Find the derivative of the given function.

1. $f(x) = x^{-4}$

$$f'(x) = -4x^{-5}$$

2. $f(x) = \frac{1}{3}x^3 - 2x^2 + 10x - 7$

$$f'(x) = x^2 - 4x + 10$$

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

$$f'(x) = 8x^3 + 3x^2 - 10x + 1$$

4. $f(x) = \frac{10}{x^4} + \frac{3}{x^2}$

$$f(x) = 10x^{-4} + 3x^{-2}$$

$$f'(x) = -40x^{-5} - 6x^{-3}$$

5. $f(x) = (3x-2)(4x+5)$

$$f'(x) = (4x+5)(3) + (3x-2)(4)$$

6. $f(x) = x^2(x^3-1)$

$$f(x) = x^5 - x^2$$

$$f'(x) = 5x^4 - 2x$$

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

$$f'(x) = \frac{(x-5)(2x) - x^2(1)}{(x-5)^2}$$

$$= \frac{(x-5)(2x) - x^2}{(x-5)^2}$$

8. $f(x) = \frac{2x-5}{x}$

$$f'(x) = \frac{x(2) - (2x-5)(1)}{x^2}$$

$$= \frac{2x - (2x-5)}{x^2}$$

$$= \frac{5}{x^2}$$