

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

$f'(x) = (6x - 1)$

2. $g(t) = 1 - 3t^2 - 2t^4$

$g'(t) = 6t - 8t$

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

$f'(x) = (2) \cdot (3x - 2) + (2x + 3) \cdot (3)$

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

$g'(x) = (4x)(3x^2) + (2x^2 - 1)(3x^2)$

5. $h(x) = (x + 1)^{3-1}$

$h'(x) = 3(x + 1)^2 \cdot (1)$

$h'(x) = 3(x + 1)^2$

6. $g(t) = (4t - 7)^2$

$g'(t) = 2(4t - 7)(4)$

$g'(t) = 8(4t - 7)(4)$

7. $f(u) = u(2u - 6)(2u + 6)$

$f'(u) = (2u^2 - 1)(2u^2 + 4)$

8. $f(x) = 4x^4 - \frac{1}{x^2}$

$f'(x) = \frac{4 \cdot 4x^{4-1} - 0(x^2) - 1(2x^{2-1})}{(x^2)^2}$

9. $g(x) = \frac{1}{x+1} - \frac{1}{x-1}$

$g'(x) = \frac{0(x+1) - 1(1+0)}{(x+1)^2} - \frac{0(x-1) - 1(1-0)}{(x-1)^2}$

$$12. f(x) = \frac{1}{1 - \frac{2}{x}}$$

$$f'(x) = \frac{0 \left(1 - \frac{2}{x}\right) - (1) \left[0 - \frac{(0)(x) - (2)(1)}{(x)^2}\right]}{\left(1 - \frac{2}{x}\right)^2}$$

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

$$20. v(x) = \frac{1}{(x+2)^2}$$

$$v'(x) = \frac{(0)(x+2)^2 - (1)(2)(x+2)^{2-1}(1+0)}{[(x+2)^2]^2}$$

$$v'(x) = \frac{-2(x+2)}{(x+2)^4}$$