Actividad de Plataforma 25 Derivadas

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

$f'(x) = 2 \times 3x^{2-1} - 1$
$f'(x) = 6x - 1$

$g(t) = t - 3t^2 - 2t^4$
$g'(t) = 1 - 2 \times 3t^{2-1} - 4 \times 2t^{4-1}$
$g'(t) = 1 - 6t - 8t^3$

$f(x) = (2x + 3)(3x - 2)$
$f'(x) = (2)(3x - 2) + (2x + 3)(3)$
$f'(x) = 6x - 4 + 6x + 9$
$f'(x) = 12x + 5$

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

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

$g(t) = (4t - 7)^2$
$g'(t) = (8 + 4) \times (4)$
$g'(t) = 32t - 56$

$f(x) = 7(2y - 1)(2y + 1)$
$f'(y) = (2x - 4)(2y^2 + y)$
$f'(y) = (4y + 1)(2y^2 - 7)$

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

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

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

9. $f(t) = \frac{1}{4-t^2}$

$$f'(t) = \frac{0(4-t^2) - 1(0-2t)}{(4-t^2)^2}$$

$$f'(t) = \frac{2t}{(4+2)^2}$$

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

$$h'(x) = \frac{0(x^2+x+1) - 3(2x+1+0)}{(x^2+x+1)^2}$$

$$h'(x) = -\frac{6x - 2x}{(x^2+x+1)^2}$$

① $f(x) \quad \frac{1}{1-\frac{2}{x}}$

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

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

② $g(t) = (t^2+1)(t^3+t^2+1)$

$g'(t) = (2t)(t^3+t^2+1) + (t^2+1)(3t^2+2t+0)$

$g'(t) = (2t)(t^3+t^2+1) + (t^2+1)(t^2+(3t^2+2t)$

③ $g(x) = \frac{\frac{1}{x} - \frac{2}{x^2}}{\frac{2}{x^3} - \frac{3}{x^4}}$

$g'(x) = \frac{\frac{1}{x^2} - \frac{4x}{x^4}\left[\frac{3}{x^3} - \frac{2}{x^2}\right] - \left[\frac{1}{x} - \frac{2}{x^2}\right]\left[\frac{-6x^2}{x^6} - \frac{-2x^3}{x^6}\right]}{\left[\frac{3}{x^3} - \frac{2}{x^4}\right]^2}$

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

$$f'(x) = \frac{3x^2 - 0(x^2+1) - 1(2x+0)}{x^2+1} \left[x^4 + \frac{1}{x^2+1}\right] \left(x^3 \frac{1}{x^2+1}\right)$$

$$\left[\frac{2}{x^3} - \frac{3}{x^4}\right]^2$$

$$4x^3 + \frac{0(x^2+1) - 1(2x+0)}{(x^2+1)^2} \left[x^7 + \frac{1}{x^2+1}\right]^2$$

$$g(t) = \frac{t-1}{t^2+2t+1}$$

$$g'(x) = \frac{(1-0)(t^2+2t+1) - (t-1)(2t+2+0)}{(t^2+2t+1)^2}$$

$$y(x) = x^3 - 6x^5 + \frac{3}{2}x^{-1} + 12$$

$$y' = 3x^2 - 30x^4 + (-1)\left(\frac{-3}{2}x^{-6}\right) + 0$$
$$y' = 3x^2 - 30x^4 - 6x^5$$

$$y = \frac{5 - 4x^2 + x^5}{x^3}$$

$$y' \frac{(0 - 8x + 5x^4)(x^3) - (5 - 4x^2 + x^5)(3x^2)}{(x^3)^2}$$

$g(x) = \frac{1}{\sqrt{3x}}$

$g'(x) = \frac{1}{3x^{1/2}}$

$g'(x) = \frac{0(3x^{1/2}) - 1(1 \cdot 3x^{1/2} \cdot 1)}{(3x^{1/2})^2}$

$g'(x) = \frac{-\frac{3}{2}x^{1/2}}{3x}$

$g(t) = \frac{(t-1)}{t^2+2t+1} =$

$g'(x) = \frac{(t+2)(t+1)(1) - (t+1)(2t+2)}{(t^2+2t+1)^2}$

$g'(t) = \frac{t+2t+1 + 2t^2 + t(-2t+2)}{(t^2+2t+1)^2}$

$g'(t) = \frac{-t^2+2t+3}{(t^2+2t+1)^2}$

20. i) $(x) \frac{1}{(x+2)^2} = \frac{1}{x^2+8x+4} \quad \frac{C}{U} = -\frac{CU'}{U^2}$

$f'(x) = \frac{(1)(2x+8)}{(x^2+8x+4)^2}$

$f'(x) = -\frac{2x+8}{(x^2+8x+4)^2}$

22. $h(x) = \frac{2x^3+x^2-3x+12}{2x-5}$

$h'(x) = \frac{(2x-5)(6x^2+2x-3) - (2x^3+x^2-3x+12)(2)}{(2x-2)^2}$

$h'(x) = \frac{12x^3+2+x^2-6x-30x^2-10x-15-4x^3-x^2+6x-34}{(2x-5)^2}$

$h'(x) = \frac{8x^3-4x^2-10-79}{(2x-5)^2}$

23. $g(x) = \frac{3x}{x^3 + 7x5}$

$$g'(x) = \frac{(x^3 + 7x - 5)(3) - (3x^2 + 7)}{(x^3 + 7x - 5)^2}$$

$$g'(x) = \frac{3x^3 + 27x - 15 - 9x^3 - 27x}{(x^3 + 7x - 5)^2}$$

$$g'(x) = \frac{-6x^3 - 15}{(x^3 + 7x - 5)^2}$$

24. $g(x)\ \dfrac{\frac{1}{x} - \frac{2}{x^2}}{\frac{2}{x^3} - \frac{3}{x^1}}$

$$g'(x) = (2x7 - 3x)(9x^6 - 16x7) - (x9 - 2x8)(14x^6 - 18x^0)$$

$$g(x) = 18^{15} - 27x - 36x^{14} + 48x^{13} - 14^{10}\ 1\ 28x + 18x^{14} - 36x^{13}$$

$$g(x)\ \frac{4x^{15}\ 13'x^{14} + 16x^{13}}{2x^7 + 3x^6)^2}$$

25. $f(x)\ \dfrac{x^3\ \frac{1}{x^2+1}}{x^4 - \frac{1}{x^2+1}}$

$\rightarrow$ $f'(x) = (x^5 + x^3 - 1)(-1)(x^6 + x^4 + 1)^{-2}(6x^5 + 4x^3) +$
$(6x^6 + x^4 + 1)^{1}(5x^4 + 3x^2)$

$$f'(x) = \frac{x^5 + x^3 - 1}{x^6 + x^4 + 1} = (x^5 + x^3 - 1)(x^6 + x^4 + 1)^{-1}$$

$$f'(x)\ \frac{(x^5 + x^3 - 1)(6x^5 + 4x^3)(5x^4 + 3x^2)}{(x^6 + x^4 + 1)^2}\ \ x^6 + x^4 + 1$$

Escaneado con CamScanner

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