

Derivadas.

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

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

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

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

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

$$(2)(3x-2) + (2x+3)(3)$$

$$f'(x) = 6x - 4 + 6x + 9$$

$$f'(x) = 12x + 9$$

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

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

5. $h(x) = 2(x+1)^2$

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

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

$$h'(x) = 2x + 2$$

6. $g(t) = (4t-7)^3$

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

$$g'(t) = (8t-14) \times (4)$$

$$g'(t) = 32t - 56$$

$$7. f(y) = y(2y-1)(2y+1)$$

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

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

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

$$f'(x) = 16x^3 - \frac{x^2 - 1x \cdot 2x}{(x^2)^2}$$

$$f'(x) = 16x^3 - \frac{-2x}{x^4}$$

$$f'(x) = 16x^3 + \frac{2}{x^3}$$

$$9. f(x) = \frac{1}{x+1} = \frac{1}{x-1} = g(x) = \frac{0(x+1) - (1)(1+b)}{(x+1)^2}$$

$$\frac{0(x-1) - (1)(x-0)}{(x-1)^2}$$

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

$$10. f(t) = \frac{1}{4-t^2}$$

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

$$11. h(x) = \frac{3}{x^2+x+1}$$

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

$$h'(x) = \frac{-6x-3}{(x^2+x+1)^2}$$

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

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

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

$$13. g'(t) = (t^2 + 1)(t^3 + t^2 + 1)$$

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

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

$$14. f'(x) = (2x^3 - 3)(17x^4 + 6x + 2)$$

$$15. \frac{g'(z)}{2z} = \frac{1}{3z^2}$$

$$g(z) = \left[z^{-2} \frac{1}{9z^2} \right] = \frac{1}{9z^3} - z^2$$

$$g'(z) = z^{-3} = g'(z) = z^{-2} \frac{1}{9z^2}$$

$$16. \frac{f'(x)}{x^2} = \frac{2x^3 - 3x^2 + 4x - 5}{x^2} \quad f(x) = \frac{4x^2}{x^2} + \frac{3x^1}{x^2} + \frac{4x - 5}{x^2}$$

$$f(x) = 6y^2$$

$$17. g'(y) = 2y(3y^2 - 1)(y^2 + 2y + 3)$$

$$g'(y) = 2y(3y^2 - y^2 + 6y^3 - 2y + 9y^2 - 3)$$

$$g'(y) = 2(3y^4 + 6y^3 + 8y^2 - 2y - 3)$$

$$g'(y) = 6y^4 + 12y^3 + 16y^2 - 4y - 6$$

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

$$18. f(x) = \frac{(x^2+2)(2x) - (x^2-1)(2x)}{(x^2+2)^2}$$

$$f'(x) = \frac{2x^2 + 4x - 2x^2 + 8x}{(x^2+2)^2} = \frac{12x}{(x^2+2)^2}$$

$$19. g'(t) = \frac{t-1}{t^2+2t+1} = g'(t) = \frac{(1-0)(t^2+2t+1) - (t-1)(2t+2)}{(t^2+2t+1)^2}$$

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

$$20. u'(x) = \frac{1}{(x+2)^2} = \frac{0(x+2)^2 - (1)(2(x+2)(1))}{[(x+2)^2]^2}$$

$$u'(x) = \frac{-2x-4}{(x+2)^3}$$

$$21. v'(t) = \frac{1}{(t-1)^3} = v'(t) = \frac{0}{(t-1)^3} = \frac{0}{(1-0)^3}$$

$$h'(x) = \frac{8x^3 - 4x^2 - 10x - 99}{(2x-5)^2}$$

$$22. \frac{2x^3+x^2-3x+17}{2x-5} \quad h'(x) = \frac{(2x-5)(6x^2+2x-3) - (2x^3+x^2-3x+17)(2)}{(2x-5)^2}$$

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

$$23. \frac{g'(x)}{x^3+7x-5} = g'(x) = \frac{(x^3+7x-5)(3) - (3x)(x^3+7x-5)}{(x^3+7x-5)^2}$$

$$g'(x) = \frac{3x^3 + 21x - 15 - 3x^4 - 21x^2 + 15x}{(x^3+7x-5)^2} \quad g(x) = \frac{6x^3 - 15}{(x^3+7x-5)^2}$$

$$24. f'(t) = \frac{t^3 - \frac{1}{(t+1)^2}}{3t^2} = f'(t) \frac{1}{3t^2}$$

$$25. \frac{g'(x)}{x - \frac{2}{x^2}} = g'(x) = \frac{-\frac{1}{x^2} - \frac{4x}{x^3} \left[\frac{2}{x^3} - \frac{3}{x^2} \right] \left[\frac{1}{x} - \frac{2}{x^2} \right] \left[\frac{6x^2 - 12x}{x^4} \right]}{\left[\frac{2}{x^3} - \frac{3}{x^2} \right]^2}$$