derivadas.

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

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

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

$g'(t) = -6t - 8t^3$

3) $f(x) = \overset{u}{(2x+3)}\overset{v}{(3x-2)}$ $\quad f'(x) = u'(x) \cdot v(x) + u(x)$

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

4) $g(x) = (2x^2 - 1)(x^3 + 2)$ $\quad f'(x) = u'(x)\, v(x)$

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

5) $h(x) = (x+1)^3$ $\quad f(x) = x^2 \quad f'(x) = n \cdot x^{n-1}$

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

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

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

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

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

7) $f(v) = y\overset{u}{(2y-1)}\overset{v}{(2y+1)}$ $\quad f'(v) = u'(x)\, v(x) + u(x)\, v'(x)$

$f(v) = (2y^2 - y)(2y^2 + y)$

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

8) $f(x) = 4x^4 - \dfrac{1}{x^2}$ $\quad \dfrac{u}{v}$ $\quad \dfrac{u'(x)\, v(x) - u(x)\, v'(x)}{v^2}$

$f'(x) = 16x^3 - \dfrac{0(x^2) - 1(2x)}{(x^2)^2}$ $\quad f'(x) = 16x^3 - \left[\dfrac{2x}{x^4}\right]$

$f'(x) = 16x^3 + \dfrac{2x}{x^4}$

9) $g(x) = \dfrac{1\,u}{x+1\,v} - \dfrac{1\,u}{x-1\,v}$ $\quad \dfrac{u}{v}$ $\quad f'(x) = \dfrac{u'(x)\, v(x) - u(x)\, v'c}{v^2}$

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

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

$v = 4t^2$
$v' = -2t$

10) $f(t) = \dfrac{1}{4-t^2}$ $\quad \dfrac{u}{v} = \dfrac{u'v - uv'}{v2}$

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

$f'(t) = \dfrac{2t}{(4-t)^4}$

$\dfrac{u}{v} = \dfrac{u'v - uv'}{v^2}$

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

$h'(x) = \dfrac{(0)(x2+x+1) - (3)(2x+1+0)}{(x^2+x+1)^2}$

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

12) $f(x) = \dfrac{1}{1-\frac{2}{x}}$ $\quad \dfrac{u}{v} = \dfrac{u'v - uv'}{v^2}$

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

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

13) $g(t) = \underset{u}{(t^2+1)}\underset{v}{(t^3+t^2+1)}$ $\quad uv = u'v + uv'$

$v' = 3t^2 + 2t + 0$ $\quad u = t2+1$ $\quad u' = 2t + 0$.

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

$g'(t) = (2t)(t3+t^2+1) + (t^2+1)(3t^2+2t)$

14) $f(x) = (2x^3-3)(17x^4-6x+2)$ $\quad uv = u'v + uv'$

$v' = 68x^3 - 6x$ $\quad u = 2x^3 - 3$ $\quad u' = 6x^2$

$f'(x) = (6x^2)(17x^4 - 6x + 2) + (2x^3-3)(68x^3 - 6x)$.

15) $g(z) = \frac{1}{z} \frac{u}{v} - \frac{1}{3z^2} \frac{u}{v} \quad \frac{u}{v} = \frac{u'v - uv'}{v^2}$

$g'(z) = \frac{\cancel{(0)(2z)} - (1)(z)}{(3z^2)^2}$

$g'(z) = \frac{-2}{(3z)^4} \quad \frac{-1}{(3z^2)} \rightarrow \frac{u}{v}$

$g'(z) = \frac{(0)(3z^2) - (1)(6z)}{(3z^2)^2} = \frac{-6z}{(3z)^4}$

$g'(z) = \frac{-2}{(3z)^4} + \frac{6z}{(3z)^4}$

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

$u = (2x^3 - 3x^2 + 4x - 5)$
$u' = (6x^2 - 6x + 4)$
$v = (x^2)$
$v' = (2x)$

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

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

17) $g(y) = 2y \quad (3y^2-1)(y^2+2y+3)$

$g'(y) = 2y \quad (3y^4 - 4^2 + 6g^3 - 2y + 9y^2 - 3)$

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

$g'(y) = 6y^5 + 12y^4 + 16y^3 - 4g^2 - 6y$

18) $f(x) = \dfrac{x^2-4}{x^2+4} \quad \dfrac{u}{v} \quad \dfrac{u'v - uv'}{v^2}$

$f'(x) = \dfrac{(2x-0)(x^2+4) - (x^2-4)(2x+0)}{(x^2+4)^2}$

$f'(x) = \dfrac{(\cancel{2x})(x^2+4) - (x^2-4)\cancel{(2x)}}{(x^2+4)^2}$

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

19) $g(t) = \dfrac{t-1}{t^2+2t+1} \quad \dfrac{u}{v} \quad \dfrac{u'v - uv'}{v^2}$

$g'(t) = \dfrac{(1)(t^2+2t+1) - (t-1)(2t+2t0}{(t^2+2t+1)^2}$

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

20) $v(x) = \dfrac{1}{(x+2)^2} \quad \dfrac{u}{v} \quad \dfrac{u'v - uv'}{v2}$

$v'(x) = \dfrac{(0)(x+2)^2 - (1)^2 (x+2)(1+0)}{(x+2y^2)}$

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

21) $v(t) = \frac{1}{(t-1)^3} \rightarrow (t-1)^{-3}$

$v'(t) = -3\,(t-1)^{-4} \cdot (t-0)$

$v'(t) = -3\,(t-1)^{-4} \cdot (t)$

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22) $L(x) = \frac{2x^3 + x^2 - 3x + 17}{2x-5}$ $\quad \frac{u}{v} = \frac{u'v - uv'}{v^2}$

$L'(x) = \frac{(6x^2 + 2x - 3)(2x-5) \cancel{(2)} (2x^3 + x^2 - 3x + 17)(2)}{(2x-5)^2}$

$L'(x) = \frac{(6x^2 + 2x - 3)(2x-5) - (2)(2x^3 + x^2 - 3x + 17)}{(2x-5)^2}$

23) $g(x) = \frac{3x}{x^3 + 7x - 5}$ $\quad \frac{u}{v} = \frac{u'v - uv'}{v^2}$

$g'(x) = \frac{(3)(x^3 + 7x - 5) - (x^3 + 7x - 5)(3x^2 + 7 - 0)}{(x^3 + 7x - 5)^2}$

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

$$24)\quad f(t) = \frac{1}{\left(t + \frac{1}{t}\right)^2} = \left(t + \frac{1}{t}\right)^{-2}$$

$$f'(t) = -2\left(t + \frac{1}{t}\right)^{-3} \cdot \left(1 + \frac{1}{t^2}\right)$$

$$25)\quad g(x) = \frac{\frac{1}{x} - \frac{2}{x^2}}{\frac{2}{x^3} - \frac{2}{x^4}} = \frac{\frac{x^2 - 2x}{x^3}}{\frac{2x^4 - 3x^3}{x^7}} = \frac{x^9 - 2x^8}{2x^7 - 3x^6}$$

$$\frac{U}{V} \cdot \frac{U'V - UV'}{V^2}$$

$$U = x^9 - 2x^8$$

$$U' = 9x^8 - 16x^7$$

$$V = 2x^7 - 3x^1$$

$$V' = 14x^6 - 18x^5$$

$$g'(x) = \frac{(9x^8 - 16x^7)(2x^7 - 3x^6) - (x^4 - 2x^8)(14x^6 - 18x^5)}{(2x^7 - 3x^6)^2}$$