U.D.S

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ACTIVIDAD = Limites y Derivadas

NOMBRE DE LA MATERIA = Biomatematico

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Estrella

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

$F'(x) - 2 \cdot 3x^{2-1} - 1$

$F(x) = 6\overset{\circ}{x} - 1$ //

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

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

$g'(t) = 1 - 6t - 8t^3$ //

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

$F'(x) = (2)(3x-2) + (2x+3(3))$

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

$F'(x) = 12x + 5$ //

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

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

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

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

$g'(x) = 2 \cdot 5x^4 + 4 \cdot 2x - 3x^2 - 0$

$g'(x) = 10x^4 - 3x^2 + 8x$ /

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

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

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

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

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

$g'(t) = \frac{d}{dt}(4t-7)^2$

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

$g'(t) = 2g \cdot 4$

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

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

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

$F'(y) = \frac{d}{dy}(y \cdot (2-1) \cdot (2y+1)$

$F'(y) = \frac{d}{dy}(y \cdot (4y^2 - 1))$

$F'(y) = (4y^3 - y)$

$F'(y) = (4y^3) - (y)$

$F'(y) = 4 \cdot 3y^2 - 1$

$F'(y) = 12y^2 - 1$ //

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

$F'(x) = \frac{d}{dx}(4x^4 - \frac{1}{x^2}$

$F'(x) = (4x^4) - (\frac{1}{x^2})$

$F'(x) = 4 \cdot 4x^3 - (-\frac{2x}{(x^2)^2})$

$F'(x) = \frac{16x^6 + 2}{x^3}$ //

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

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

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

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

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

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

$F'(t) = \frac{2t}{(4-t^2)^2}$

$F'(t) = 16 - 8t^2 + t^4$ //

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

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

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

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

$F'(x) = \frac{d}{dx}\left(\frac{1}{1-\frac{2}{x}}\right)$

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

$F'(x) = \left(\frac{x}{x-2}\right)$

$F'(x) = \frac{(x)\cdot(x-2)\cdot x(x-2)}{(x-2)^2}$

$F'(x) = \frac{1(x-2) - x\cdot 1}{(x-2)^2}$

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

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

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

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

$g'(t) = 2t^4 + 2t^3 + 2t + 3t^4 + 2t^3 + 3t^2 + 2t$

$g'(t) = 5t^4 + 4t^3 + 3t^2 + 4t$ //

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

$F'(x) = \frac{d}{dx}((2x^3-3)\cdot(17x^4-6x+2))$

$F'(x = (34x^7 - 12x^4 + 4x^3 - 51x^4 + 18x - 6)$

$F'(x) = (34x^7 - 63x^4 + 4x^3 + 18x - 6)$

$F'(x) = (34x^7) + (-63x^4) + (4x^3) + (18x) - (6)$

$F'(x) = 34\cdot 7x^6 - 63\cdot 4x^3 + 4\cdot 3x^2 + 18 - 0$

$F'(x) = 238x^6 - 252x^3 + 12x^2 + 18$ //

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

$g'(z) = \frac{d}{dz}\left(\frac{1}{2z} - \frac{1}{3z^2}\right)$

$g'(z) = \left(\frac{1}{22} - \frac{1}{1024}\right)$

$g'(z) = \left(\frac{501}{11264}\right)$

$g'(z) = 0$

16.- $F(x) = \dfrac{2x^3 - 3x^2 + 4x - 5}{x^2}$

$F'(x) = \dfrac{d}{dx}\left(\dfrac{2x^3 - 3x^2 + 4x - 5}{x^2}\right)$

$F'(x) = \left(\dfrac{2x^3}{x^2} - \dfrac{3x^2}{x^2} + \dfrac{4x}{x^2} + \dfrac{4x}{x^2} - \dfrac{5}{x^2}\right)$

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

$F'(x) = 2 - 0 - 4 \cdot \frac{1}{x^2} - \left(-5\ \dfrac{2x}{(x^2)^2}\right)$

$F'(x) = 2 - \dfrac{4}{x^2} + \dfrac{10}{x^3}$ //

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

$g'(y) = \dfrac{d}{dy}(2y(3y^2 - 1)(y^2 + 2y + 3))$

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

$g'(y) = (6y^5 + 12y^4 + 18y^3 - 2y^3 - 4y^2 - 6y)$

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

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

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

$g'(y) = 30y^4 + 48y^3 + 48y^2 - 8y - 6$ //

18.- $F(x) = \dfrac{x^2 - 4}{x^2 + 4}$

$F'(x) = \dfrac{d}{dx}\left(\dfrac{x^2 - 4}{x^2 + 4}\right)$

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

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

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

19.- $g(t) = \dfrac{t-1}{t^2+2t+1}$

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

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

20.- $U(x) = \dfrac{1}{(x+2)^2}$

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

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

21.- $V(t) = \dfrac{1}{(t-1)^3}$

$$V'(t) = \frac{d}{dt}\left(\frac{1}{(t-1)^3}\right)$$

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

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

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

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

$$V'(t) - \frac{3}{(t-1)^4}$$

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

$h'(x) = \frac{d}{dx}\left(\frac{2x^3+x^2-3x+17}{2x-5}\right)$

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

$h'(x) = \frac{(2\cdot 3x^2+2x-3)(2x-5)-(2x^3+x^2-3x+17)\times 2}{(x2-5)^2}$

$h'(x) = \frac{8x^3-28x^2-10x-19}{(2x-5)^2}$

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

$g'(x) = \frac{d}{dx}\left(\frac{3x}{x^3+7x-5}\right)$

$g'(x) = \frac{(3)(x3+7x-5)-3x(x^3+7x-5)}{(x^3+7x-5)^2}$

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

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

24.- $F(t) = \frac{1}{(1+\frac{1}{t})^2}$

$F'(t) = \frac{d}{dt}\left(\frac{1}{(1+\frac{1}{t})^2}\right)$

$F'(t) = \left(\frac{\frac{1}{(t+1)^2}}{t^2}\right.$

$F'(t) \left(\frac{t^2}{(t-1)^2}\right)$

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

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

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

$F'(t) = \frac{2t}{(t+1)^3}$ //

$$25.- \; g(x) = \frac{\frac{1}{x} - \frac{2}{x^2}}{\frac{2}{x^3} - \frac{3}{x^4}}$$

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

$$g(x) = \frac{-2}{x^2} \qquad g'(x) = \frac{0(x^2) - 2(2x)}{(x^2)^2} = \frac{-4x}{x^4}$$

$$h(x) = \frac{2}{x^3} \qquad h'(x) = 0(x^3) - 2(3x^2) = -\frac{6x^2}{x^6}$$

$$i(x) = \frac{-3}{x^4} \qquad i'(x) = 0(x^4) - 3(4x^3) = \frac{-12x^3}{x^8}$$

$$g'(x) = \frac{\left[\frac{1}{-x^2} - \frac{4x}{x^4}\right]\left[\frac{2}{x^3} - \frac{3}{x^4}\right] - \left[\frac{1}{x} - \frac{2}{x^2}\right]\left[\frac{-6x^2}{x^3} - \frac{12^{-3}}{x^8}\right]}{\left[\frac{2}{x^3} - \frac{3}{x^4}\right]^2}$$

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