→ NOMBRE DEL ALUMNO:

▶ URIEL DOMINGUEZ ALVAREZ

→ DOCENTE:

▶ ING. GERMAN GORDILLO ESPINOSA

→ ACTIVIDAD:

▶ DERIVADAS

→ ASIGNATURA:

▶ BIOMATEMATICAS

→ CARRERA:

▶ MEDICINA HUMANA

Escaneado con CamScanner

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

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

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

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

$g'(t)=0-2\cdot 3t^{2-1}-4\cdot 2t^{4-1}$

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

3 $F(x)=(\overbrace{2x+3}^{u(x)})(\overbrace{3x-2}^{v(x)}$

$F'(x)=(2+0)(3x-2)+(2x+3)\cdot(3-0)$

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

4 $g(x)=(\overbrace{2x^2-1}^{u})(\overbrace{x^3+2}^{v})$

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

$g'(x = (x+1)^3$

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

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

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

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

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

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

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

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

$g'(t)=2(4t-7)\cdot(4-0)$

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

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

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

$F'(y)=(2y^2-y)(2y^2+y)$

$F'(y)=2\cdot 2y^{2-1}-1)\cdot(2y^2+y)+(2y^2-y)(2\cdot 2^{2-1}+1)$

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

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

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

$F'(x) = 16x^3 - \left[\frac{-2x}{x^4}\right]$

$F'(x) = 16x^3 + \frac{2x}{x^4}$

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

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

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

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

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

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

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

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

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

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

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

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

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13.- $g(t)=(t^2+1)(t^3+t^2+1)$ $UV=U'V+UV'$

$V'=3t^2+2t+0$ $U=t^2+1$ $U'=2t+0$

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

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

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

$V'=68x^3-6x$ $U=2x^3-3$ $U'=6x^2$

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

15.- $g(z)=\frac{1V}{2zV}-\frac{1}{3z^2}$ $\frac{U}{V}=\frac{U'V-UV'}{V^2}$

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

$g'(z)=\frac{-2}{(3z)^4}-\frac{1}{(2z^2)}\rightarrow\frac{U}{V}$

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

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

16. $F(x)=\frac{2x^3-3x^2+4x-5}{x^2}$ $\frac{U}{V}=\frac{U'V-UV'}{V^2}$

$U=(2x^3-3x^2+4x-5$

$U'=(6x^2-6x+4)$

$V=(x^2$

$V'=(2x)$

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

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

Norma

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

$g'(y) = 2y(3y^4 - y^2 + 6y^3 - 2y + 9y^2 - 3)$
$g'(y) = (3y^4 + 6y^3 + 8y^2 - 2y - 3)$
$g'(y) = 6y^5 + 12y^4 + 16y^3 - 4y^2 - 6y$

18- $F(x) = \frac{x^2-4}{x^2+4}$ $\quad \frac{U}{V} \quad \frac{U'V-UV'}{V^2}$

$F'(x) = \frac{(2x-0)(x^2+4)-(x^2-4)(2x+0)}{(x^2+4)^2}$

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

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

19. $g(t) = \frac{\cancel{t}-1}{t^2+2t+1}$ $\quad \frac{U}{V} \quad \frac{U'V-UV'}{V^2}$

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

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

20= $U(x) = \frac{1}{(x+2)^2}$ $\quad \frac{U}{V} \quad \frac{U'V-UV'}{V^2}$

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

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

Norma

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

$V'(t) = -3(t-1)^{-4} \cdot (t-0) \rightarrow$ Regla de la cadena.

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

22- $h(x) = \dfrac{2x^3+x^2-3x+17}{2x-5} \quad \dfrac{U}{V} = \dfrac{U'V-UV'}{V^2}$

$h'(x) = \dfrac{(6x^2+2x-3+0)(2x-5)-(2x^3+x^2-3x+17)(2)}{(2x-5)^2}$

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

23 $g(x) = \dfrac{3x}{x^3+7x-5} \quad \dfrac{U}{V} = \dfrac{U'V-UV'}{V^2}$

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

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

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

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

25.

Norma

$$g(x) = \frac{\frac{1}{x} - \frac{2}{x^2}}{\frac{2}{x^3} - \frac{3}{x^4}} = \frac{\frac{x^2-2x}{x^3}}{\frac{2x^4-3x^3}{x^7}} = \frac{\overset{U}{x^9-2x^8}}{\underset{V}{2x^7-3x^6}}$$

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

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

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

$V = 2x^7 - 3x^6$

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

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