



# Mi Universidad

***NOMBRE DEL ALUMNO:***

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***NOMBRE DEL TEMA:***

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***NOMBRE DE LA MATERIA:***

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***NOMBRE DE LA LICENCIATURA:***

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$$1. f(x) = 3x^2 - x + 5 \quad f'(x) = 6x - 1 + 10$$

Formula  
← usada

$$2. g(t) = 1 - 3t^2 - 2t^4 \quad g'(t) = 6t - 8t^3$$

$$ax + b = a$$

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

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

Formula  
U·V  
= U'·V + U·V'

$$5. h(x) = (x+1)^3 \quad h'(x) = 3(x+1) \cdot (1) \quad h'(x) = 3(x+1)$$

Formula  
 $v^n = n \cdot v(x) \cdot v'$

$$6. g(t) = (4t-7)^2 \quad g'(t) = 2(4t-7) \cdot (4) \quad g'(t) = 8(4t-7)$$

Formula  
 $v^n = n \cdot v(x) \cdot v'$

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

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

Formula  
 $U \cdot V = U' \cdot V + U \cdot V'$

$$8. f(x) = 4x^4 - \frac{1}{x^2} \quad f'(x) = 16x^3 - \frac{0(x) - 1(x)}{(x^2)^2}$$

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

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

$$ax + b = a$$

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

Formula =  $\frac{u(x)}{v(x)} = \frac{u'v - uv'}{v^2}$

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

$$10. f(t) = \frac{1}{4-t^2} \quad f'(t) = \frac{0 \cdot (4-t^2) - 1(2t)}{(4-t^2)^2}$$

Formula

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

$\frac{u(x)}{v(x)} = \frac{u'v - uv'}{v^2}$

$$11. h(x) = \frac{3}{x^2 + x + 1} \quad h'(x) = \frac{0 \cdot (x^2 + x + 1) - 3(2x + 1)}{(x^2 + x + 1)^2}$$

Formula

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

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

$$12. f(x) = \frac{1}{1 - \frac{2}{x}} \quad f'(x) = \frac{0 \cdot (1 - \frac{2}{x}) - (1) \cdot (0 - \frac{2}{x^2})}{(1 - \frac{2}{x})^2}$$

Formula

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

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

Formula

$$u \cdot v = u' \cdot v + u \cdot v'$$

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

Formula

$$u \cdot v = u' \cdot v + u \cdot v'$$

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

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

Formula

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

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

$$g'(z) = \frac{0 \cdot (2z) - 1(2)}{(2z)^2} - \frac{0 \cdot (3z^2) - 1(9z)}{(3z^2)^2}$$

$$g'(z) = \frac{2}{2z^2} - \frac{9z}{3z^4}$$

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

$$\text{Formula} \\ \frac{U}{V} = \frac{U'V - UV'}{V^2}$$

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

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

$$\text{Formula} \\ U \cdot V = U' \cdot V + U \cdot V'$$

$$2y(3y^4 - y^2 + 6y^3 - 2y + 9y^2 - 3)$$

$$2y(3y^4 + 6y^3 + 9y^2 - 2y - 3)$$

$$6y^5 + 12y^4 + 18y^3 - 4y^2 - 6y$$

$$18. f(x) = \frac{x^2 - 4}{x^2 + 4}$$

$$\text{Formula} \\ \frac{U}{V} = \frac{U'V - UV'}{V^2}$$

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

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

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

$$\text{Formula} \\ \frac{U}{V} = \frac{U'V - UV'}{V^2}$$

$$20. u(x) = \frac{1}{(x+2)^2}$$

$$\text{Formula} \\ \frac{U}{V} = \frac{U'V - UV'}{V^2}$$

$$u'(x) = \frac{0(x+2)^2 - (1)(2)(x+2)(1)}{(x+2)^4} \quad u'(x) = \frac{-2(x+2)}{(x+2)^4}$$

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

$$v'(t) = 0 \cdot (t-1)^3 - (1) \cdot 3(t-1)^2(1)$$

$$\frac{-3(t-1)^2}{(t-1)^6}$$

$$v'(t) = -\frac{3(t-1)^2}{(t-1)^6}$$

Formulas

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

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

$$v^n = n v(x) \cdot v'$$

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

Formula

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

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

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

Formula

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

⊙ P(t) =

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

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

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

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

$$\frac{\frac{x^2 - 2x}{x^3}}{\frac{2x^4 - 3x^3}{x^7}} = \frac{x^9 - 2x^8}{2x^7 - 3x^6}$$

U  
V

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

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

Formula

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

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

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

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