

UDS

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Nombre del maestro: Luis Enrique Menesme

Nombre de la materia: calculo

Cuatrimestre: 4to cuatrimestre

Parcial: 3er parcial

Nombre de la especialidad: Tecnico en
Administracion en Recursos Humanos

$$11. f(x) = (3x-2)(x^2+x+1)$$

$$u = f(x) = (3x-2) = 3$$

$$v = f(x) = (x^2+x+1) = 2x+1$$

$$du = \frac{d}{dx} (3x-2) = 3$$

$$dv = \frac{d}{dx} (x^2+x+1) = 2x+1$$

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

$$= 6x^2 - 4x + 3x - 2 + 3x^2 + 3x + 3$$

$$= 6x^2 + 3x^2 - 4x + 3x + 3x + 3 - 2$$

$$= 9x^2 + 2x + 1$$

$$12. g(x) = (2x+4)(x^3-x+5)$$

$$du = \frac{d}{dx} (2x+4) = 2$$

$$dv = \frac{d}{dx} (x^3-x+5) = 3x^2-1$$

$$= (2x+4)(3x^2-1) + (x^3-x+5)(2)$$

$$= 6x^3 + 12x^2 - 2x - 4 + 2x^3 - 2x + 10$$

$$= 6x^3 + 2x^3 + 12x^2 - 2x - 2x + 10 - 4$$

$$= 8x^3 + 12x^2 - 4x + 6$$

$$13. h(x) = (5x-1)(x^2+2x+3)$$

$$du = \frac{d}{dx} (5x-1) = 5$$

$$dv = \frac{d}{dx} (x^2+2x+3) = 2x+2$$

$$= 10x^2 + 5x^2 + 10x + 10x - 2x + 15 - 2$$

$$= 15x^2 + 18x + 13$$

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

$$= 10x^2 - 2x + 10x - 2 + 5x^2 + 10x + 15$$

$$14. -P(x) = (4x+6)(x^3-2x+1)$$

$$du = \frac{d}{dx}(4x+6) = 4$$

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

$$= (4x+6)(3x^2-2) + (x^3-2x+1)(4)$$

$$= 16x^3 + 18x^2 - 16x - 8$$

$$= 12x^3 + 18x^2 - 8x - 12 + 4x^3 - 8x + 4$$

$$= 12x^3 + 4x^3 + 18x^2 - 8x - 8x - 12 + 4$$

$$15. -q(x) = (x-2)(3x^2+x-4)$$

$$du = \frac{d}{dx}(x-2) = 1$$

$$dv = \frac{d}{dx}(3x^2+x-4) = 6x+1$$

$$= (x-2)(6x+1) + (3x^2+x-4)(1)$$

$$= 30x^2 - 26x - 8$$

$$= 12x^2 - 24x - 4x + 12x^2 + 6x^2 + 2x - 8$$

$$= 12x^2 + 12x^2 + 6x^2 - 24x - 4x + 2x - 8$$

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

$$u = 3x-2 \quad v = x^2+1$$

$$du = 3 \quad dv = 2x$$

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

$$= \frac{6x^2+6 - 6x^2-4x}{(x^2+1)^2}$$

$$= \frac{-4x+6}{(x^2+1)^2}$$

$$17. g(x) = \frac{5x^3 - 4}{x + 2} \quad u = 5x^3 - 4 \quad v = x + 2$$

$$du = 15x - 4 \quad dv = 2$$

$$= \frac{(x+2)(15x-4) - (5x^3-4)(2)}{(x+2)^2}$$

$$= \frac{15x^2 - 4x + 30x - 8 - [10x^3 - 8]}{(x+2)^2}$$

$$= \frac{15x^2 - 4x + 30x - 8 - 10x^3 + 8}{(x+2)^2}$$

$$= \frac{-10x^3 + 15x^2 + 26x}{(x+2)^2}$$

$$18. h(x) = \frac{2x^2 - 3}{x^2 + x - 1} \quad u = 2x^2 - 3 \quad v = x^2 + x - 1$$

$$du = 4x - 3 \quad dv = 2x - 1$$

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

$$= \frac{4x^3 - 3x^2 + 4x^2 - 3x + 4x + 3 - [4x^3 + 2x^2 - 3x - 3]}{(x^2 + x - 1)^2}$$

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

$$= \frac{-1x^2 + 4x + 6}{(x^2 + x - 1)^2}$$

$$19. p(x) = \frac{x^4 + 1}{3x - 5}$$

$$u = x^4 + 1 \quad v = 3x - 5$$

$$du = 4x \quad dv = 3$$

$$= \frac{(3x-5)(4) - (x^4+1)(3)}{(3x-5)^2}$$

$$= \frac{12x - 20 - [3x^4 + 3]}{(3x-5)^2}$$

$$= \frac{12x - 20 - 3x^4 - 3}{(3x-5)^2}$$

$$= \frac{-3x^4 + 12x - 23}{(3x-5)^2}$$

$$20. q(x) = \frac{6x^5 - 4x}{x^2 + 1} \quad u = 6x^5 - 4x \quad v = x^2 + 1$$

$$du = 30x - 4 \quad dv = 2x$$

$$= \frac{30x^3 - 4x^2 + 30x - 4 - [12x^5 + 8x]}{(x^2 + 1)^2}$$

$$= \frac{(x^2 + 1)(30x - 4) - (6x^5 - 4x)(2)}{(x^2 + 1)^2}$$

$$= \frac{-12x^5 + 30x^3 - 4x^2 + 38x - 4}{(x^2 + 1)^2}$$

$$= \frac{30x^3 - 4x^2 + 30x - 4 - [12x^5 - 8x]}{(x^2 + 1)^2}$$