



Mi Universidad

Probleuario

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Derivadas

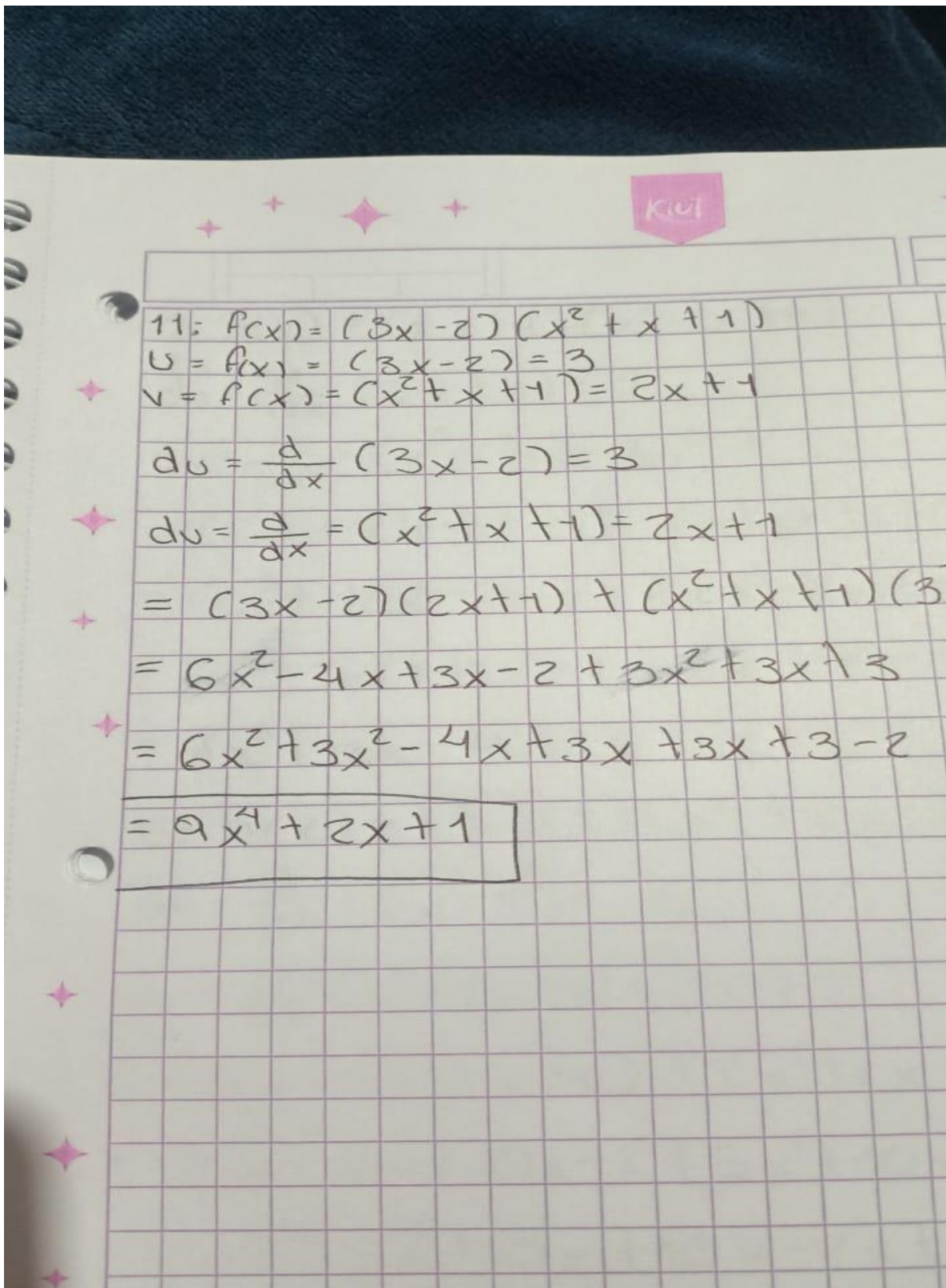
Parcial 3

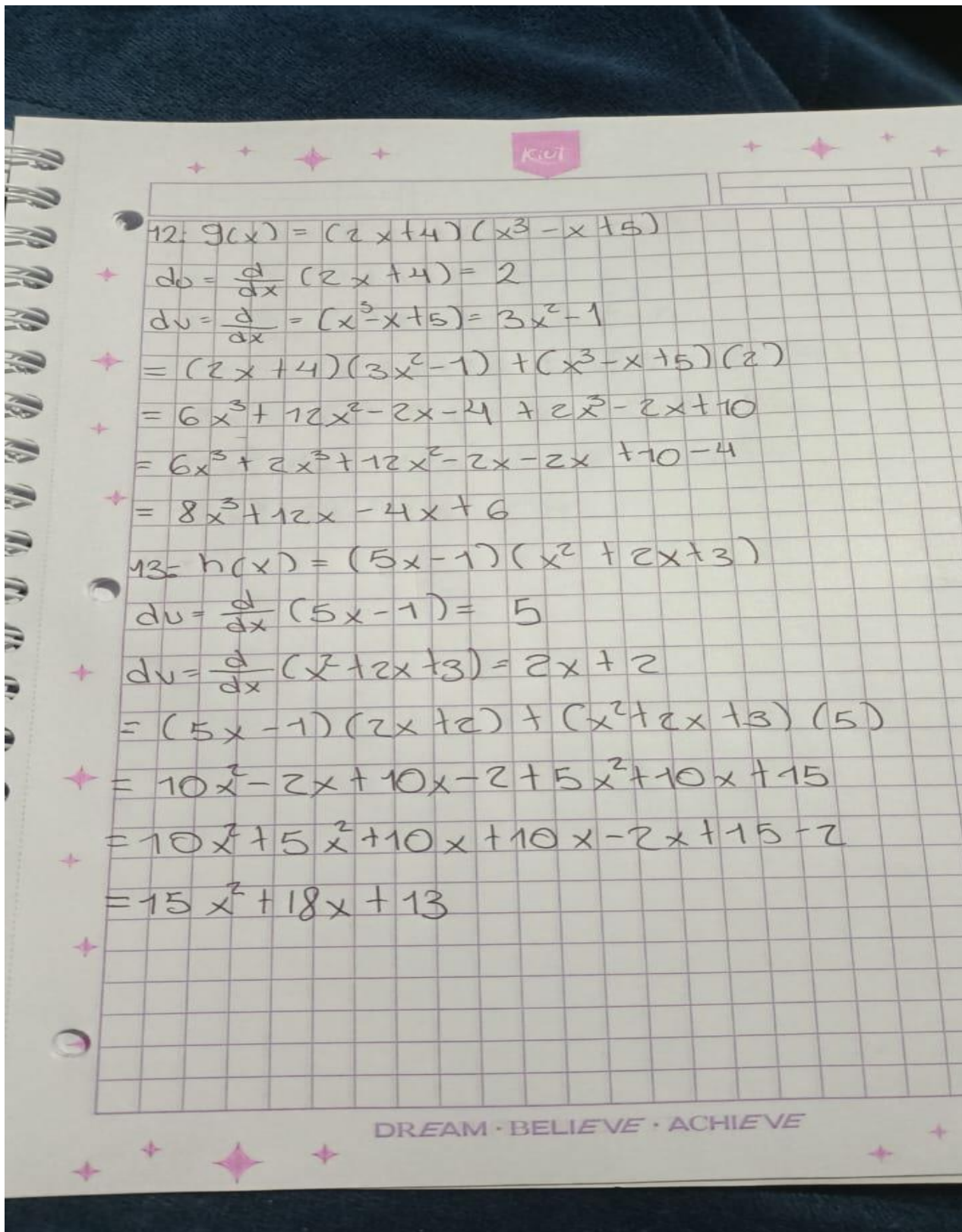
Calculo

Luis Enrique Meneses Wong

Técnico en administración de recursos humanos

4to cuatrimestre





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

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

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

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

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

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

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

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

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

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

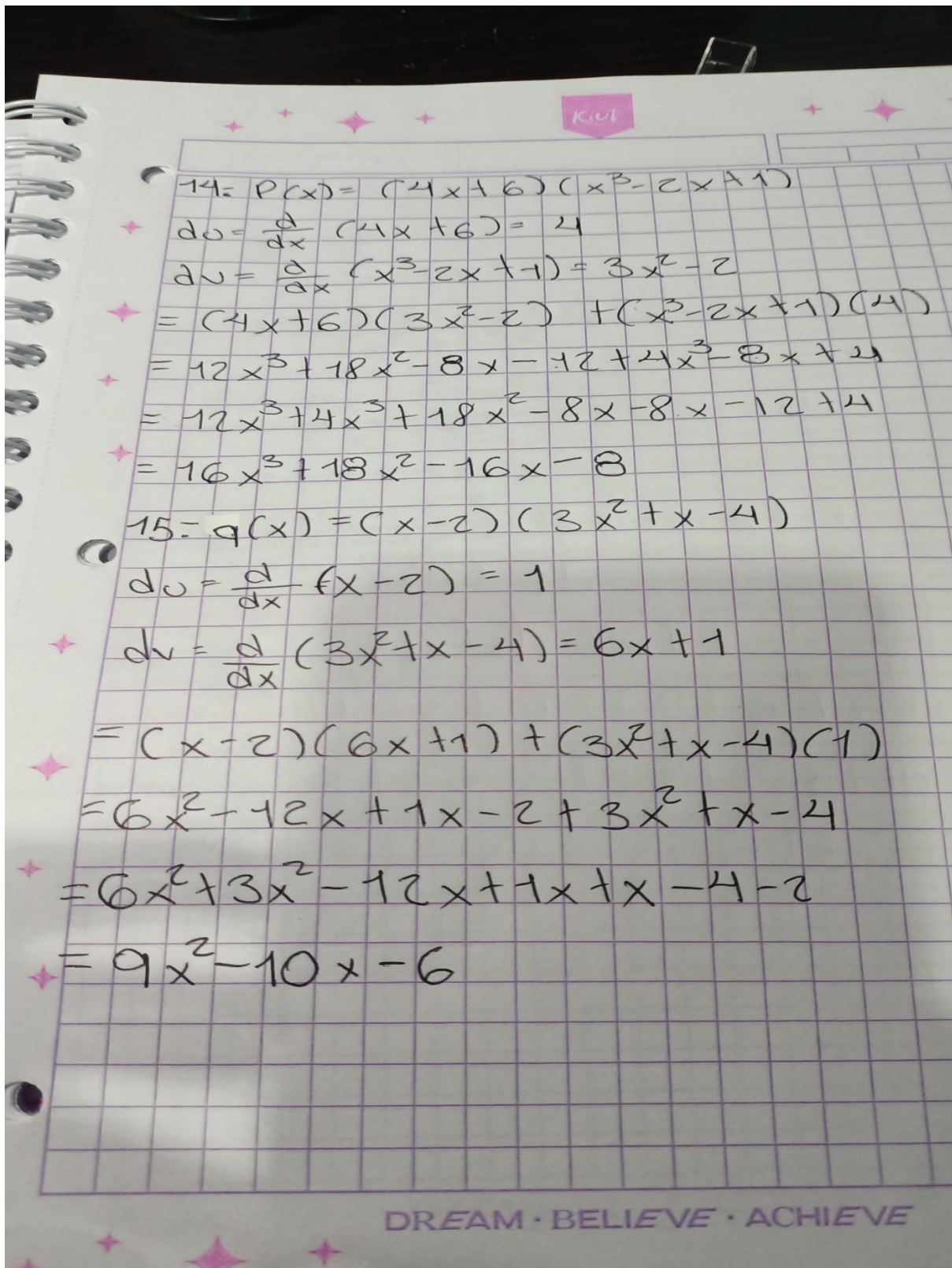
$$= (5x-1)(2x+2) + (x^2+2x+3)(5)$$

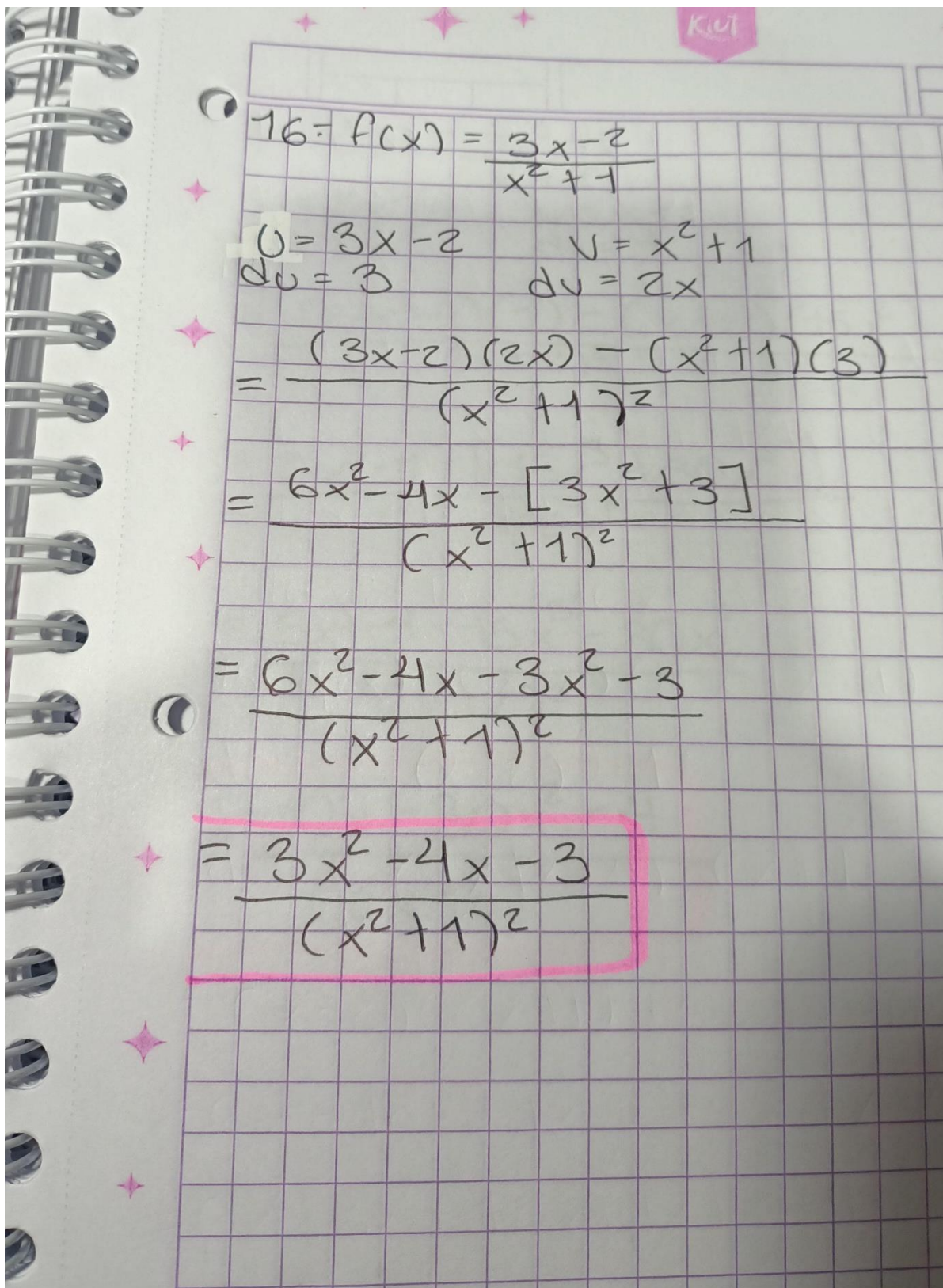
$$= 10x^2 - 2x + 10x - 2 + 5x^2 + 10x + 15$$

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

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

DREAM · BELIEVE · ACHIEVE





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

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

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

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

$$= \frac{6x^2 - 4x - [3x^2 + 3]}{(x^2+1)^2}$$

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

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

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

$$u = 5x^3 - 4 \quad v = x + 2$$

$$du = 15x^2 \quad dv = 1$$

$$= \frac{(5x^3 - 4)(1) - (x + 2)(15x^2)}{(x + 2)^2}$$

$$= \frac{5x^3 - 4 - [15x^3 + 30x^2]}{(x + 2)^2}$$

$$= \frac{5x^3 - 4 - 15x^3 - 30x^2}{(x + 2)^2}$$

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

KUT

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

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

$$du = 4x \quad dv = 2x + 1$$

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

$$= \frac{4x^3 - 6x + 2x^2 - 3 - [4x^3 + 4x^2 - 4x]}{(x^2 + x - 1)^2}$$

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

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

KUT

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

$U = x^4 + 1$ $V = 3x - 5$
 $du = 4x^3$ $dv = 3$

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

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

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

$$= \frac{-9x^4 + 20x^3 + 3}{(3x - 5)^2}$$

Kel

$$20: a(x) = \frac{6x^5 - 4x}{x^2 + 1}$$

$$u = 6x^5 - 4x \quad v = x^2 + 1$$

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

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

$$= \frac{12x^6 - 8x^2 - [30x^6 + 30x^4 - 4x^2 - 4]}{(x^2 + 1)^2}$$

$$= \frac{12x^6 - 8x^2 - 30x^6 - 30x^4 + 4x^2 + 4}{(x^2 + 1)^2}$$

$$= \frac{18x^6 - 30x^4 - 4x^2 + 4}{(x^2 + 1)^2}$$