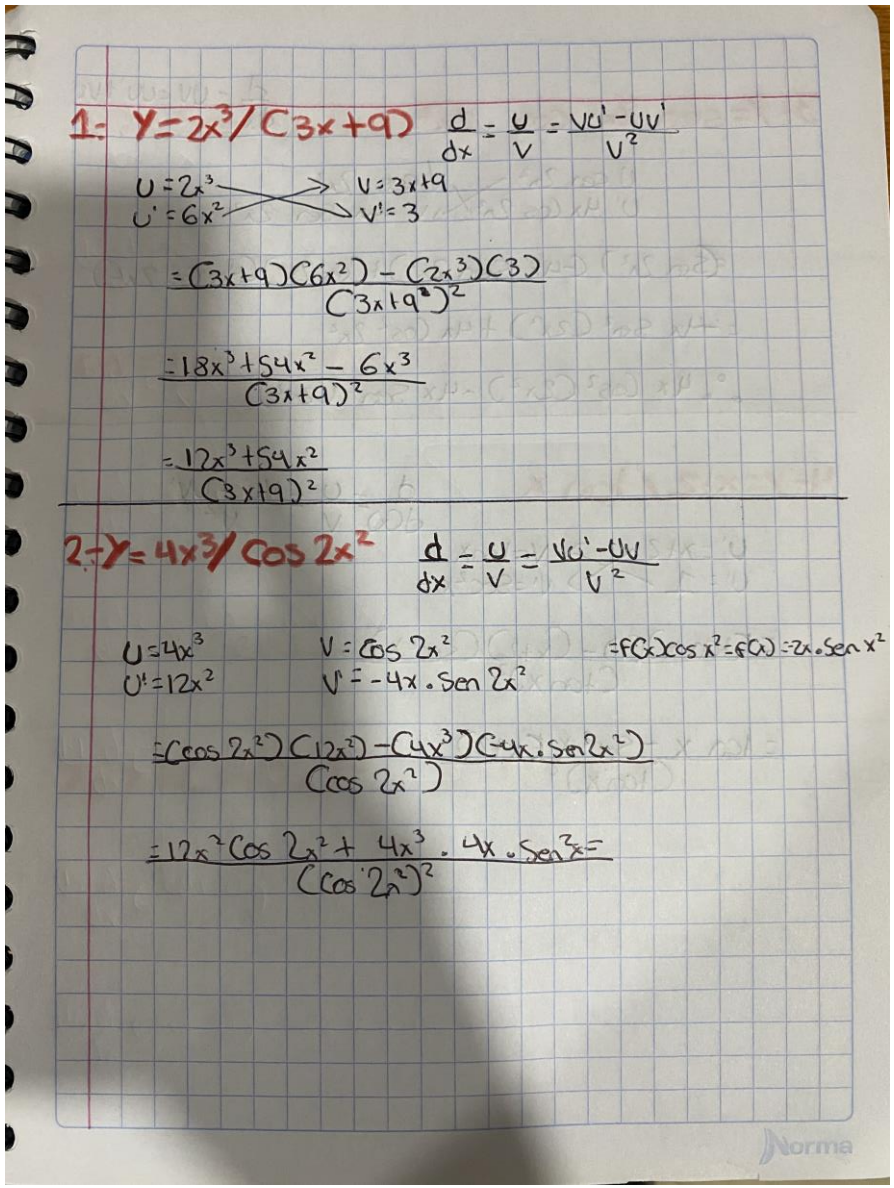


1: $y = 2x^3 / (3x+9)$ $\quad \frac{d}{dx} = \frac{u}{v} = \frac{vu' - uv'}{v^2}$

$u = 2x^3$ $\quad v = 3x+9$

$u' = 6x^2$ $\quad v' = 3$

$= \frac{(3x+9)(6x^2) - (2x^3)(3)}{(3x+9^2)^2}$

$= \frac{18x^3 + 54x^2 - 6x^3}{(3x+9)^2}$

$= \frac{12x^3 + 54x^2}{(3x+9)^2}$

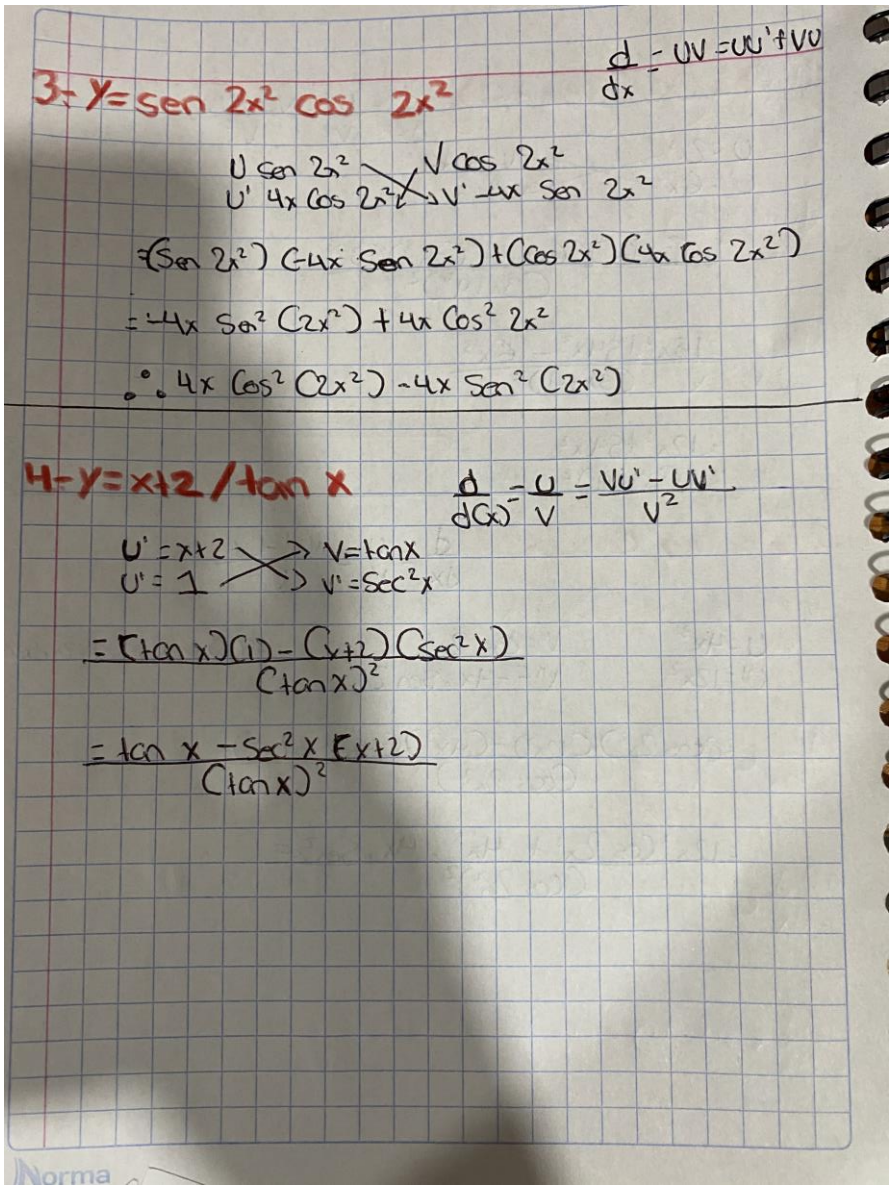
2: $y = 4x^3 / \cos 2x^2$ $\quad \frac{d}{dx} = \frac{u}{v} = \frac{vu' - uv}{v^2}$

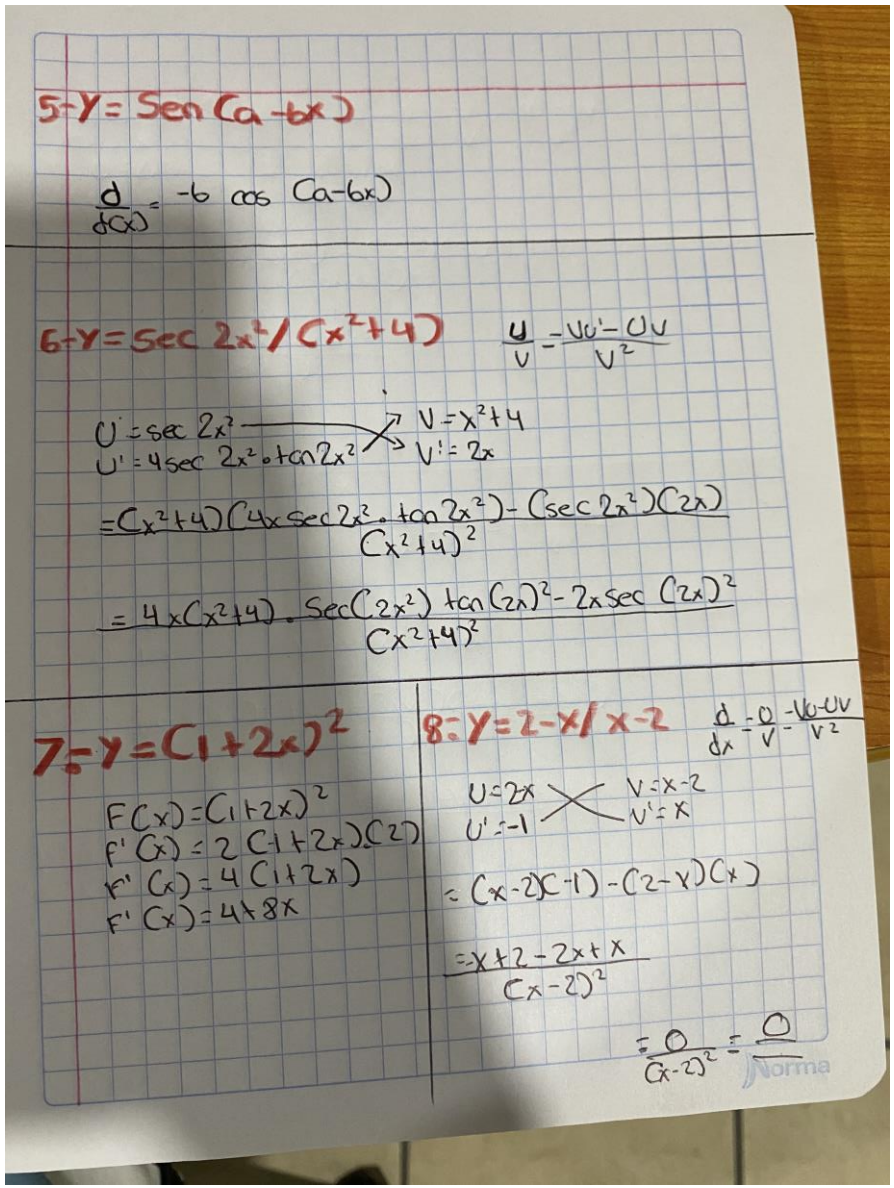
$u = 4x^3$ $\quad v = \cos 2x^2$ $\quad = f(x) \cos x^2 = f(x) = 2x \cdot \operatorname{sen} x^2$

$u' = 12x^2$ $\quad v' = -4x \cdot \operatorname{sen} 2x^2$

$= \frac{(\cos 2x^2)(12x^2) - (4x^3)(-4x \cdot \operatorname{sen} 2x^2)}{(\cos 2x^2)}$

$= \frac{12x^2 \cos 2x^2 + 4x^3 \cdot 4x \cdot \operatorname{sen} 2x^2}{(\cos 2x^2)^2}$


3- y = sen 2x² cos 2x²
d/dx uv = uv' + vu'
u sen 2x²
u' 4x cos 2x²
v cos 2x²
v' -4x sen 2x²
= (sen 2x²)(-4x sen 2x²) + (cos 2x²)(4x cos 2x²)
= -4x sen² (2x²) + 4x cos² 2x²
∴ 4x cos² (2x²) - 4x sen² (2x²)
4- y = x+2 / tan x
d/dx u/v = (vu' - uv')/v²
u' = x+2
u' = 1
v = tan x
v' = sec² x
= (tan x)(1) - (x+2)(sec² x) / (tan x)²
= tan x - sec² x (x+2) / (tan x)²


5- Y = Sen (a - bx)
d/d(x) = -b cos (a - bx)
6- Y = Sec 2x² / (x² + 4)
u/v = -vu' - uv / v²
u = sec 2x²
u' = 4 sec 2x² · tan 2x²
v = x² + 4
v' = 2x
= (x² + 4)(4x sec 2x² · tan 2x²) - (sec 2x²)(2x) / (x² + 4)²
= 4x(x² + 4) · Sec(2x²) tan(2x)² - 2x sec (2x)² / (x² + 4)²
7- Y = (1 + 2x)²
F(x) = (1 + 2x)²
F'(x) = 2 (1 + 2x)(2)
F'(x) = 4 (1 + 2x)
F'(x) = 4 + 8x
8- Y = 2 - x / x - 2
d/dx = u/v = -vu - uv / v²
u = 2x
u' = -1
v = x - 2
v' = x
= (x - 2)(-1) - (2 - x)(x)
= -x + 2 - 2x + x / (x - 2)²
= 0 / (x - 2)² = 0