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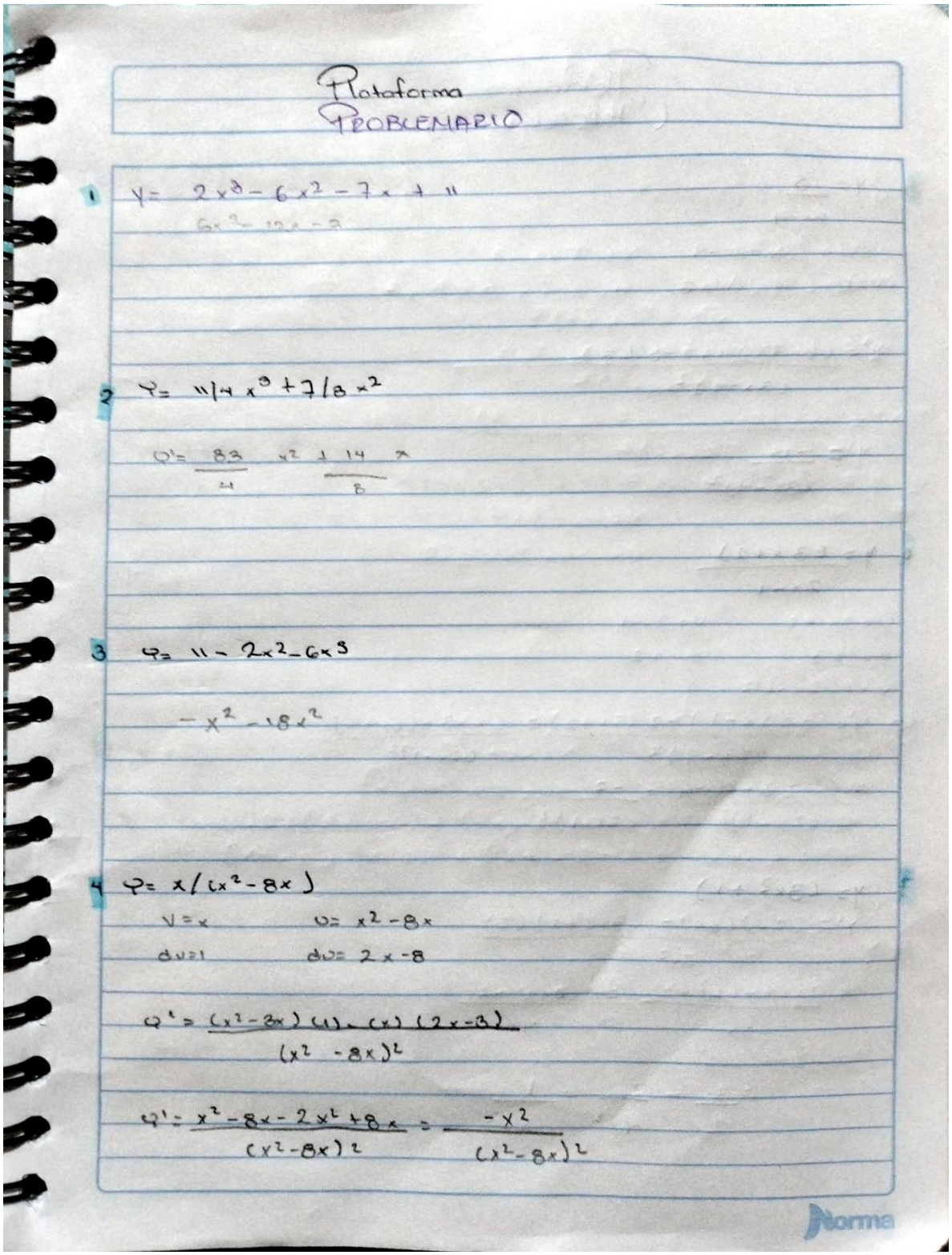
Nombre del tema : Problemario

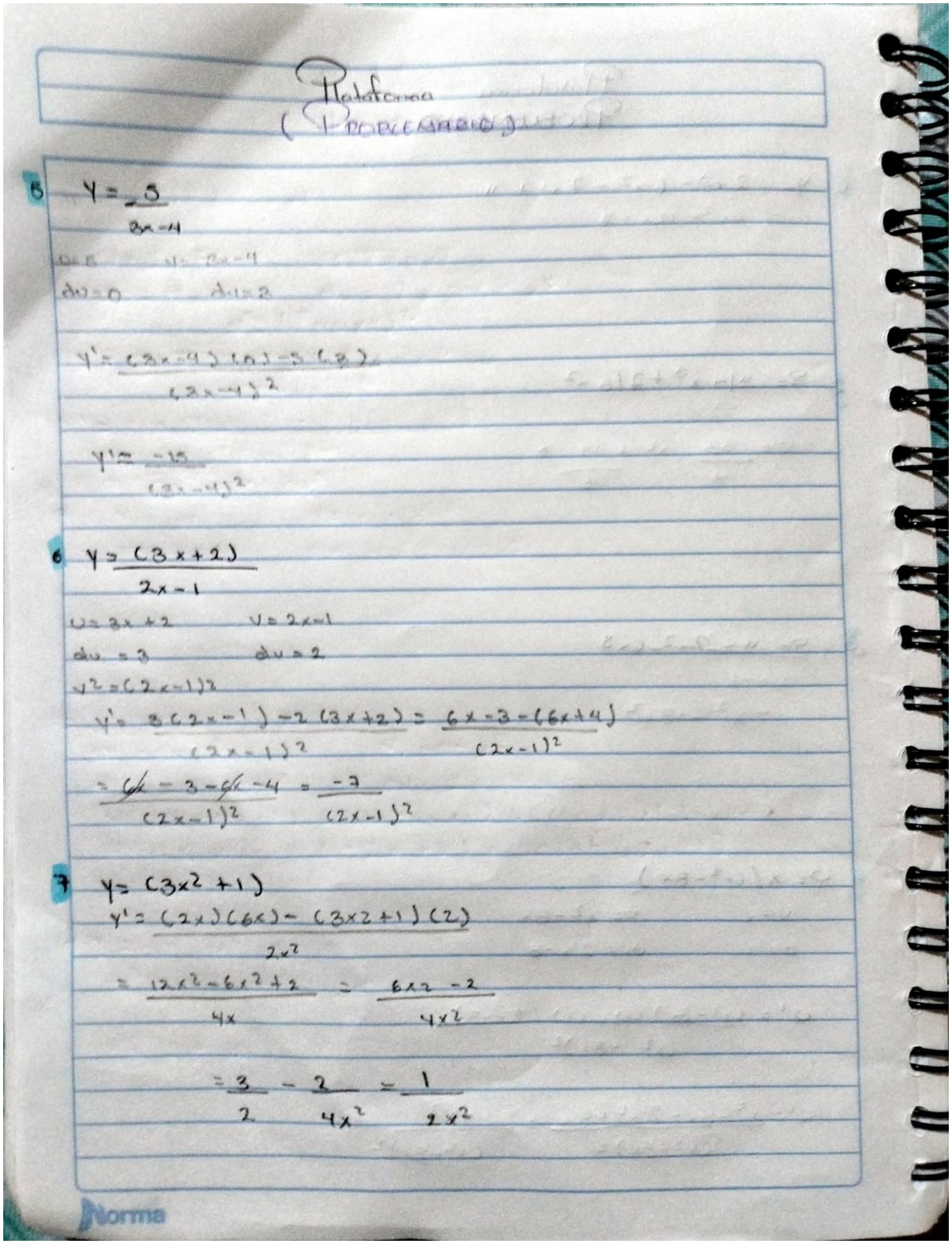
Parcial : 4

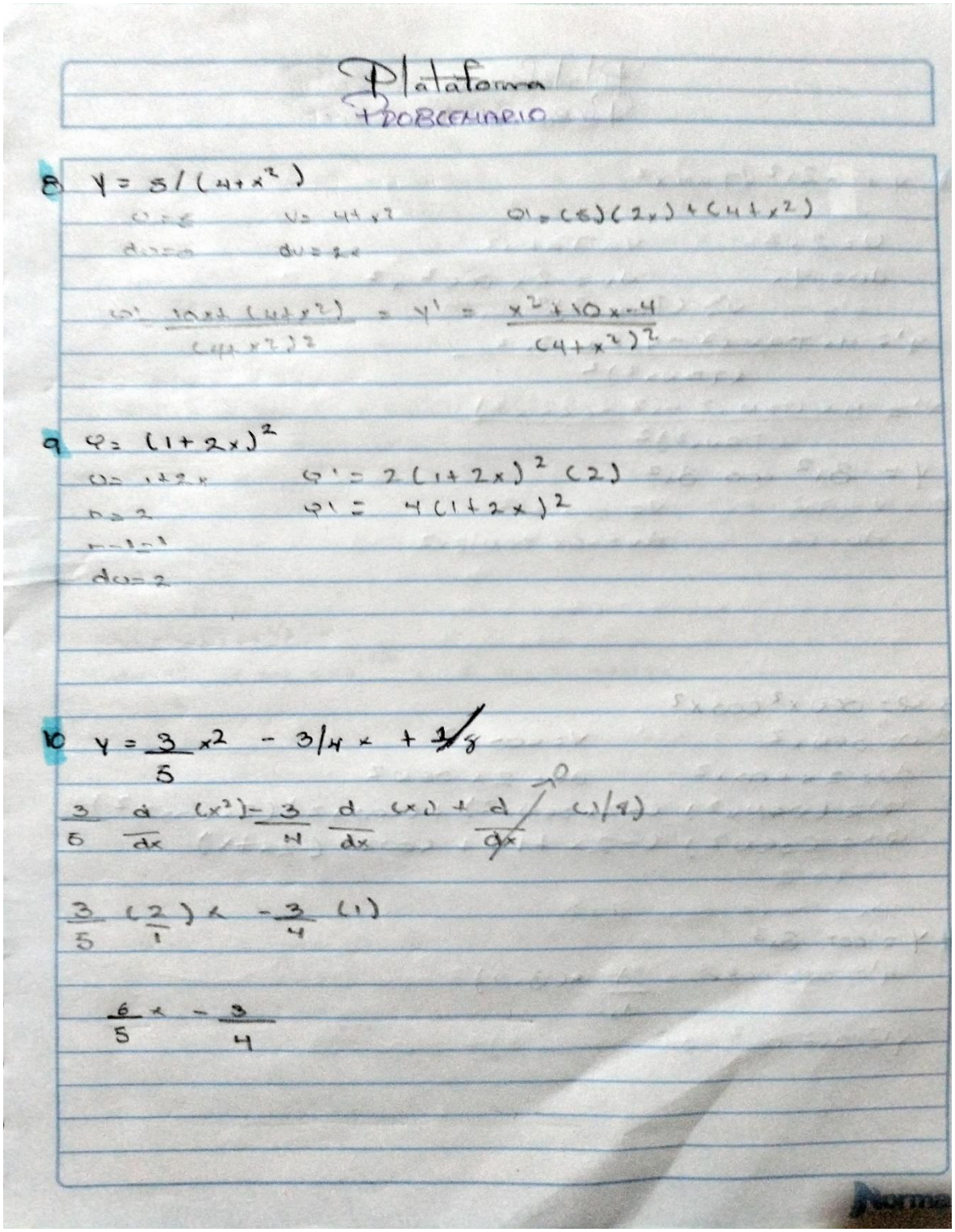
Nombre de la Materia: Cálculo

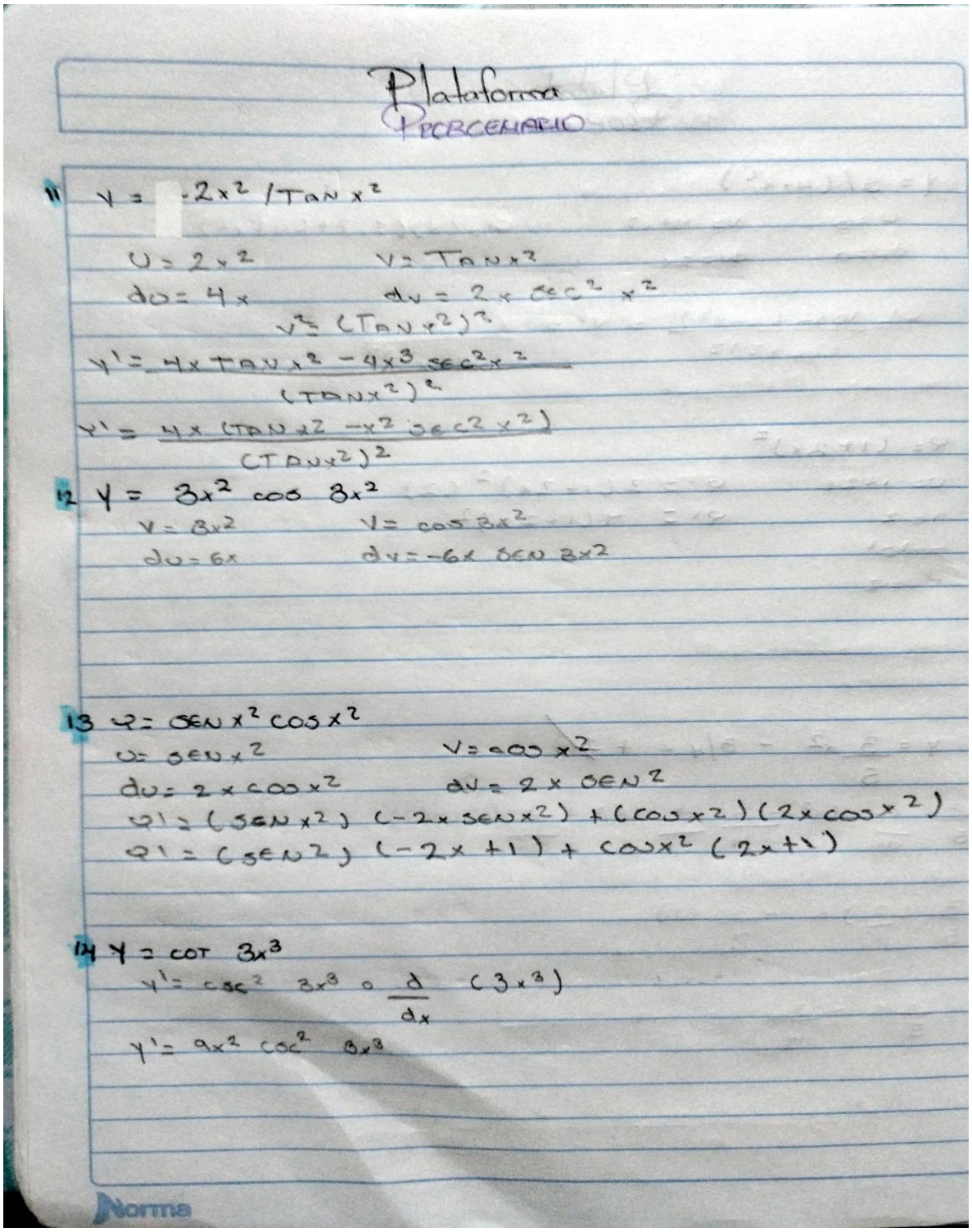
Nombre del profesor: Juan José Ojeda

Nombre de la Licenciatura: Tec en enfermería


Plataforma
PROBLEMARIO
1 y= 2x³ - 6x² - 7x + 11
2 y= 11/4 x³ + 7/8 x²
3 y= 11 - 2x² - 6x³
4 y= x/(x² - 8x)
v = x
dv = 1
u = x² - 8x
du = 2x - 8
y' = ((x² - 8x)(1) - (x)(2x - 8)) / (x² - 8x)²
y' = (x² - 8x - 2x² + 8x) / (x² - 8x)² = -x² / (x² - 8x)²


Plataforma
5 $y = \frac{5}{3x-4}$
$u = 5$ $v = 3x-4$
$du = 0$ $dv = 3$
$y' = \frac{(3x-4)(0) - 5(3)}{(3x-4)^2}$
$y' = \frac{-15}{(3x-4)^2}$
6 $y = \frac{(3x+2)}{2x-1}$
$u = 3x+2$ $v = 2x-1$
$du = 3$ $dv = 2$
$v^2 = (2x-1)^2$
$y' = \frac{3(2x-1) - 2(3x+2)}{(2x-1)^2} = \frac{6x-3-(6x+4)}{(2x-1)^2}$
$= \frac{6x-3-6x-4}{(2x-1)^2} = \frac{-7}{(2x-1)^2}$
7 $y = (3x^2+1)$
$y' = \frac{(2x)(6x) - (3x^2+1)(2)}{2x^2}$
$= \frac{12x^2-6x^2+2}{4x} = \frac{6x^2-2}{4x^2}$
$= \frac{3}{2} - \frac{2}{4x^2} = \frac{1}{2x^2}$
Norma


Plataforma
TRABAJO
8 Y = 5/(4+x²)
u = 5 v = 4+x² du = 0 dv = 2x
y' = 10x(4+x²) / (4+x²)² = y' = x²+10x-4 / (4+x²)²
9 y = (1+2x)²
u = 1+2x y' = 2(1+2x)²(2)
n = 2 y' = 4(1+2x)²
n-1 = 1
du = 2
10 y = 3/5 x² - 3/4 x + 1/8
3/5 d/dx (x²) - 3/4 d/dx (x) + d/dx (1/8)
3/5 (2/1) x - 3/4 (1)
6/5 x - 3/4



Plataforma

PROCEMARIO

11 $y = 2x^2 / \tan x^2$

$u = 2x^2$ $\quad v = \tan x^2$

$du = 4x$ $\quad dv = 2x \sec^2 x^2$

$v^2 = (\tan x^2)^2$

$y' = \frac{4x \tan x^2 - 4x^3 \sec^2 x^2}{(\tan x^2)^2}$

$y' = \frac{4x(\tan x^2 - x^2 \sec^2 x^2)}{(\tan x^2)^2}$

12 $y = 3x^2 \cos 3x^2$

$v = 3x^2$ $\quad v = \cos 3x^2$

$du = 6x$ $\quad dv = -6x \operatorname{sen} 3x^2$

13 $y = \operatorname{sen} x^2 \cos x^2$

$u = \operatorname{sen} x^2$ $\quad v = \cos x^2$

$du = 2x \cos x^2$ $\quad dv = 2x \operatorname{sen} x^2$

$y' = (\operatorname{sen} x^2)(-2x \operatorname{sen} x^2) + (\cos x^2)(2x \cos x^2)$

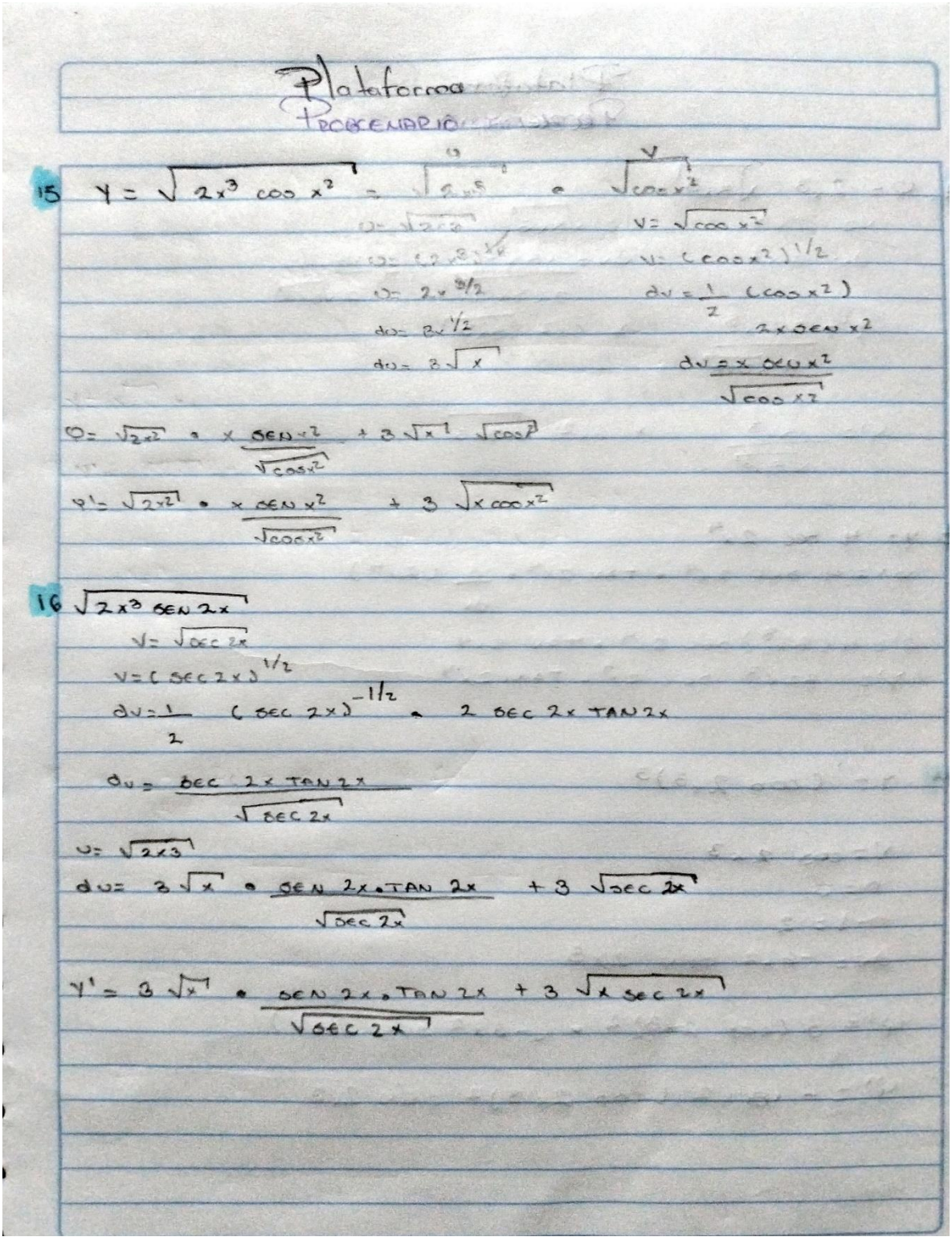
$y' = (\operatorname{sen} x^2)(-2x + 1) + \cos x^2 (2x + 1)$

14 $y = \cot 3x^3$

$y' = \csc^2 3x^3 \circ \frac{d}{dx}(3x^3)$

$y' = 9x^2 \csc^2 3x^3$

Norma


Plataforma
15 $y = \sqrt{2x^3 \cos x^2}$
$u = \sqrt{2x^3}$
$u = (2x^3)^{1/2}$
$u = 2x^{3/2}$
$du = 3x^{1/2}$
$du = 3\sqrt{x}$
$v = \sqrt{\cos x^2}$
$v = (\cos x^2)^{1/2}$
$dv = \frac{1}{2}(\cos x^2)^{-1/2} \cdot 2x \operatorname{sen} x^2$
$dv = \frac{x \operatorname{sen} x^2}{\sqrt{\cos x^2}}$
$y' = \sqrt{2x^3} \cdot \frac{x \operatorname{sen} x^2}{\sqrt{\cos x^2}} + 3\sqrt{x} \sqrt{\cos x^2}$
$y' = \sqrt{2x^3} \cdot \frac{x \operatorname{sen} x^2}{\sqrt{\cos x^2}} + 3\sqrt{x \cos x^2}$
16 $\sqrt{2x^3 \operatorname{sen} 2x}$
$v = \sqrt{\sec 2x}$
$v = (\sec 2x)^{1/2}$
$dv = \frac{1}{2}(\sec 2x)^{-1/2} \cdot 2 \sec 2x \tan 2x$
$dv = \frac{\sec 2x \tan 2x}{\sqrt{\sec 2x}}$
$u = \sqrt{2x^3}$
$du = 3\sqrt{x} \cdot \frac{\operatorname{sen} 2x \cdot \tan 2x}{\sqrt{\sec 2x}} + 3\sqrt{\sec 2x}$
$y' = 3\sqrt{x} \cdot \frac{\operatorname{sen} 2x \cdot \tan 2x}{\sqrt{\sec 2x}} + 3\sqrt{x \sec 2x}$

Plataforma

PROBLEMARIO

17 $y = 2x^3 \sqrt{5x^3}$

$u = 2x^3$ $\quad v = \sqrt{5x^3}$

$du = 6x^2$ $\quad dv = \frac{15x^2}{2(5x^3)^{1/2}} = \frac{15x^2}{2\sqrt{5x^3}}$

$y' = \frac{30x^5}{2\sqrt{5x^3}} + 6x^2\sqrt{5x^3}$

$y' = \frac{15x^3}{\sqrt{5x^3}} + 6x^2\sqrt{5x^3}$

18 $y = 4 \sec 2x^4$

$y' = 4 \sec 2x^4 \cdot \tan 2x^4 \cdot \frac{d}{dx}(2x^4)$

$y' = 4(8x^3) \sec 2x^4 \cdot \tan 2x^4$

$y' = 32x^3 \sec 2x^4 \cdot \tan 2x^4$

19 $y = (\cos 2x^3)^3$

$v = \cos 2x^3$

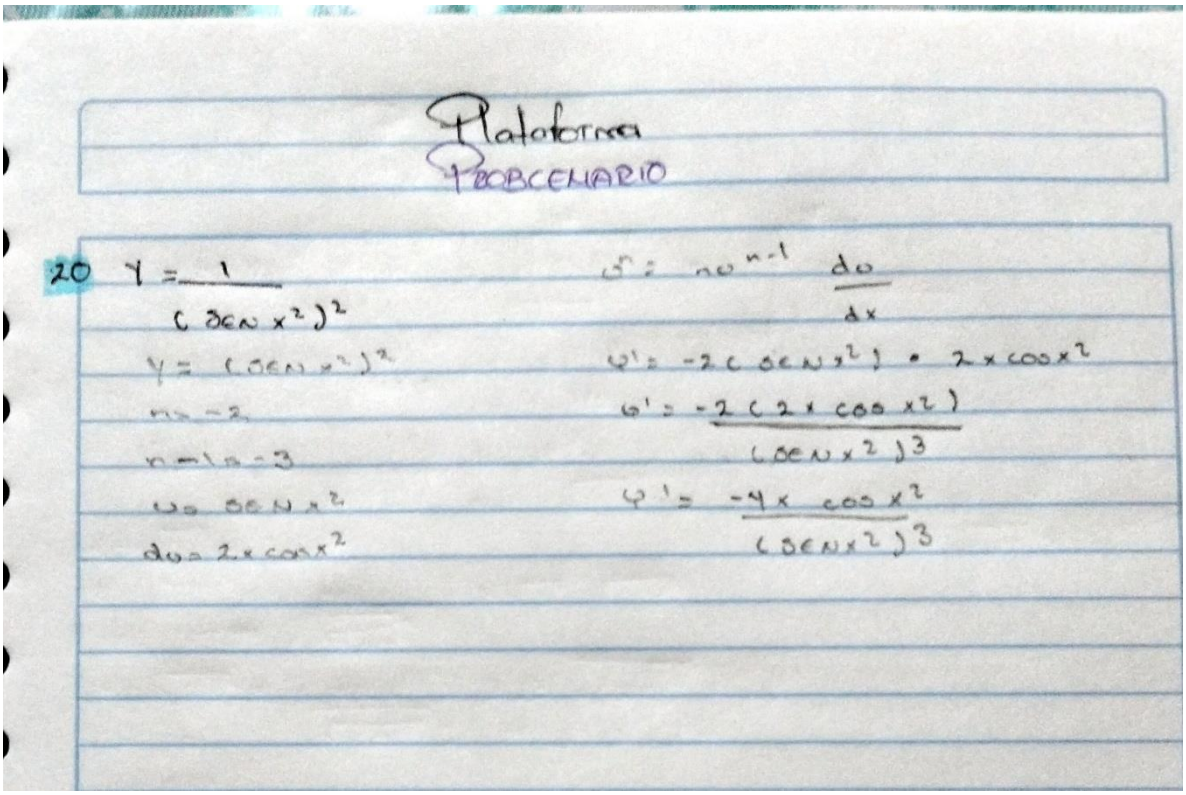
$n = 3$

$n-1 = 2$

$dv = -6x^2 \operatorname{sen} 2x^3$

$y' = 3(\cos 2x^3)^2 \cdot (-6x^2 \operatorname{sen} 2x^3)$

$y' = -18x^2 (\cos 2x^3)^2 \operatorname{sen} 2x^3$


Plataforma
PROBCENARIO
20 y = 1 / (sen x²)²
y = (sen x²)⁻²
n = -2
n - 1 = -3
u = sen x²
du = 2x cos x²
y' = n u^(n-1) du/dx
y' = -2 (sen x²)⁻³ · 2x cos x²
y' = -2 (2x cos x²) / (sen x²)³
y' = -4x cos x² / (sen x²)³