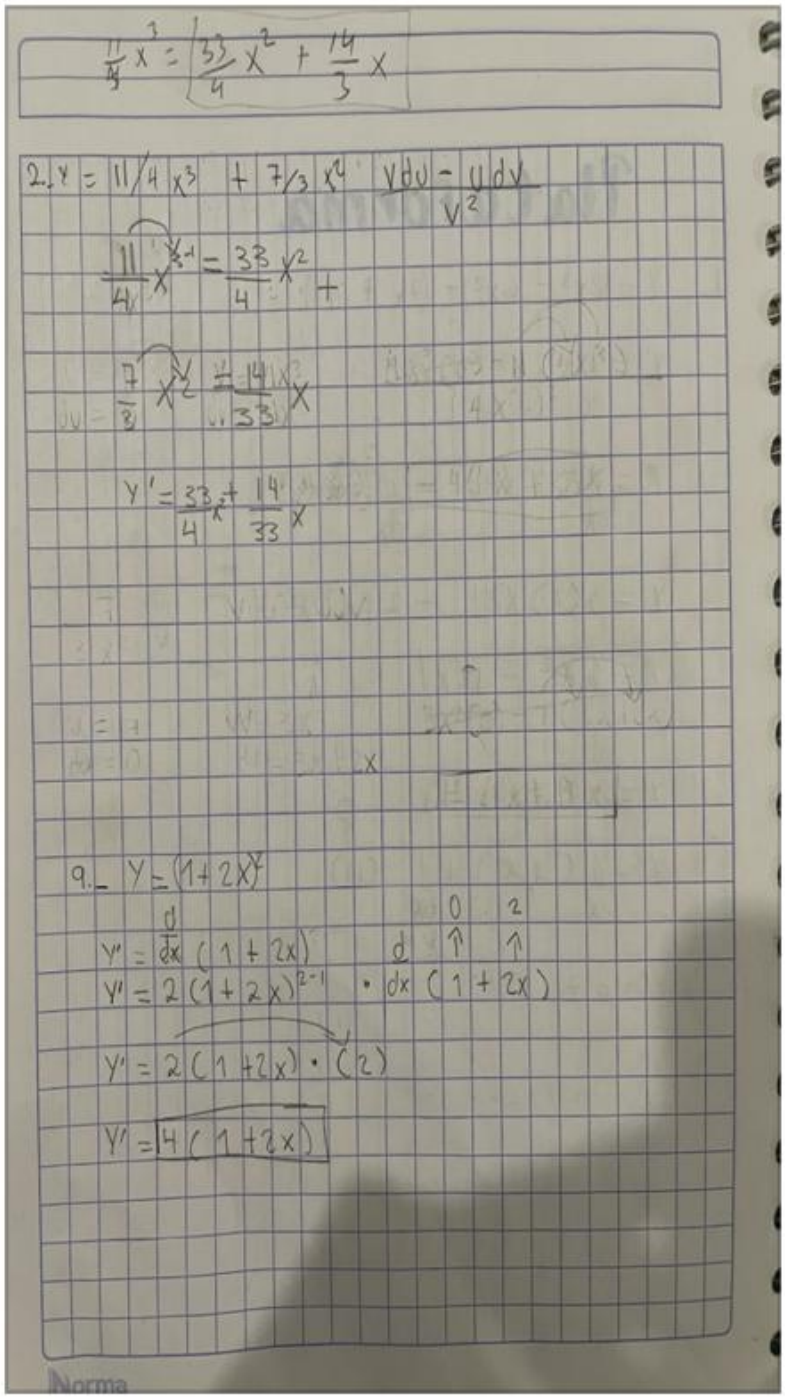
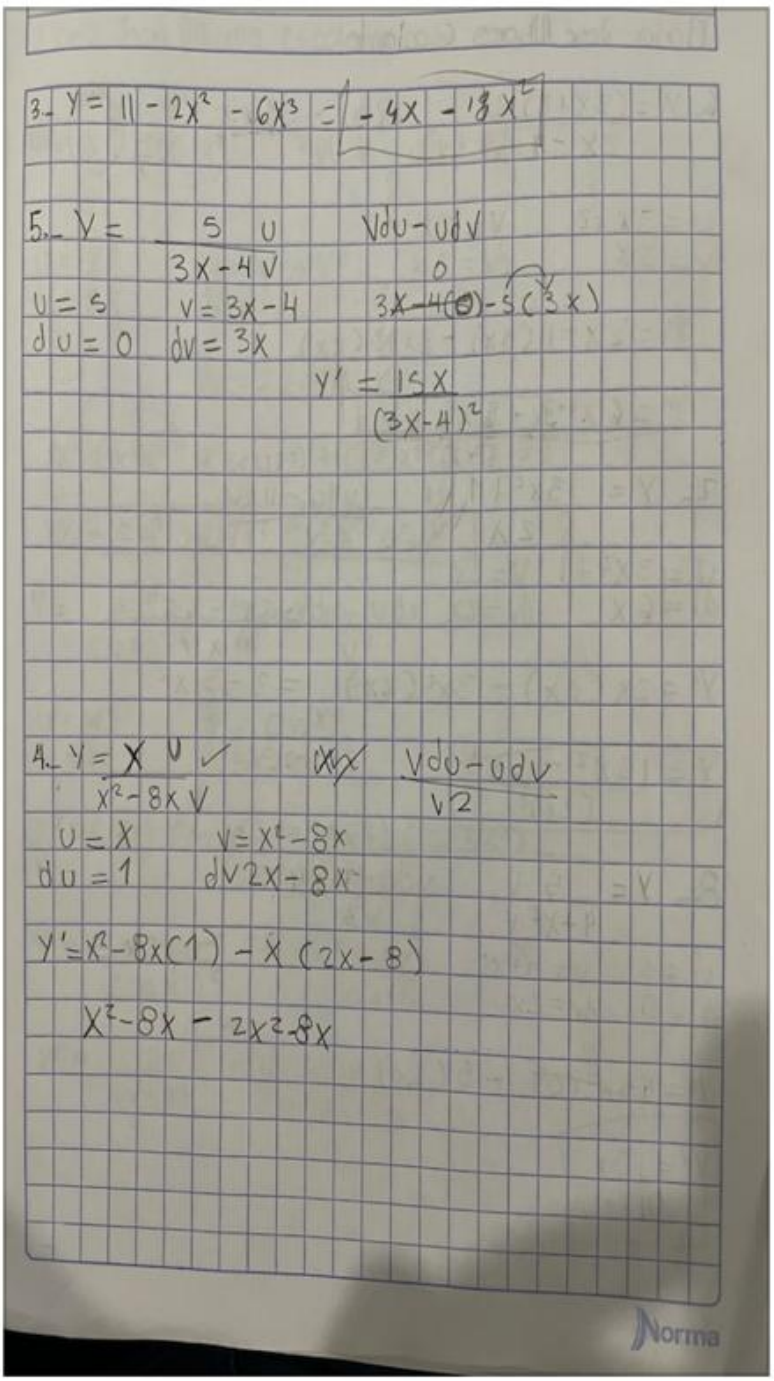
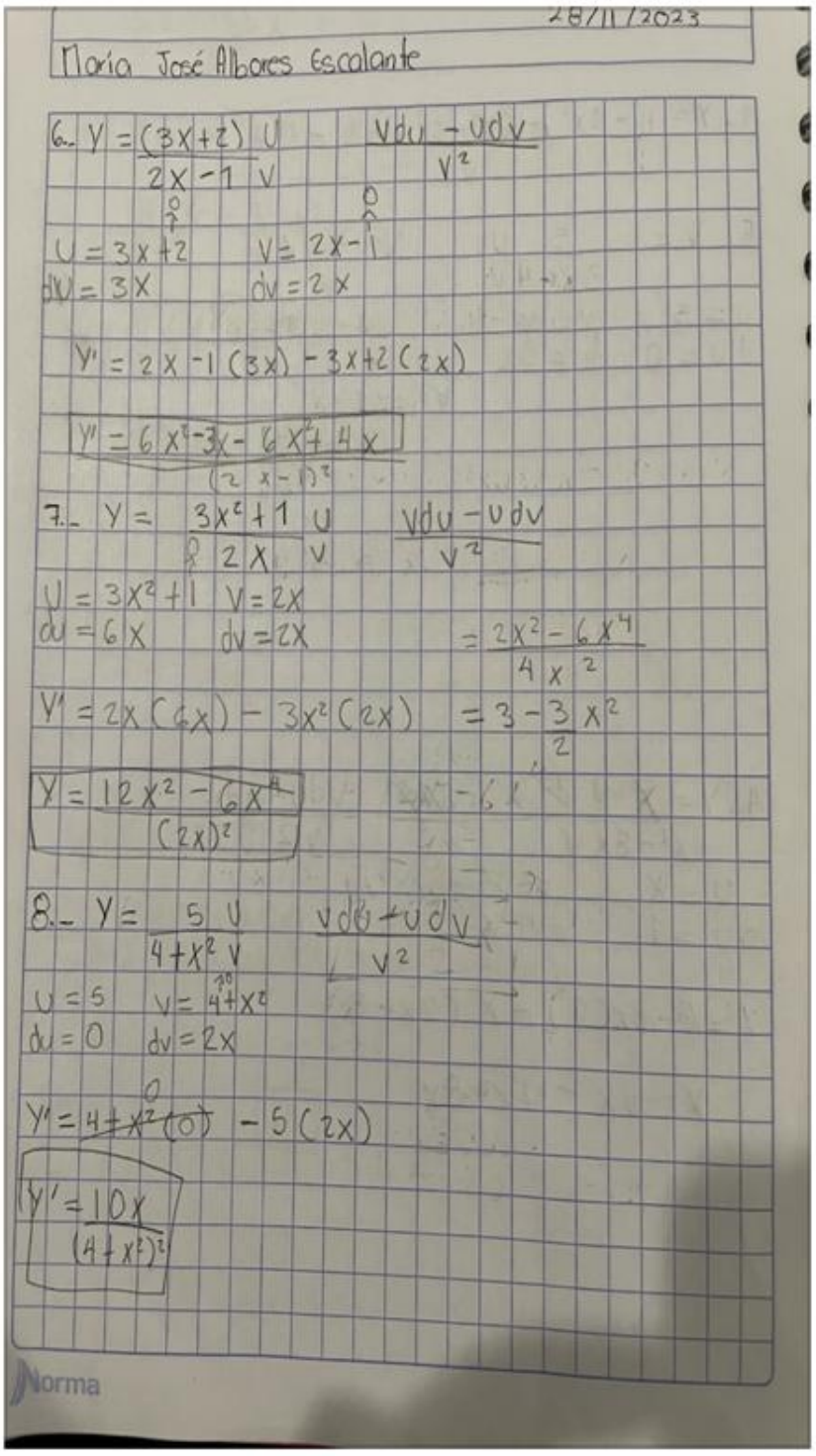
Nombre del alumno: María José Albores Escalante
Nombre del profesor: Reynaldo Francisco Manuel Gallegos
Nombre de la materia: Submodulo I
Cuatrimestre: 4
Carrera: BRH
Parcial: 4
Lugar y fecha de elaboración : COMITÁN


$\frac{11}{4}x^3 = \frac{33}{4}x^2 + \frac{14}{3}x$
2.- $y = 11/4\,x^3 + 7/3\,x^4$ $\frac{v\,du - u\,dv}{v^2}$
$\frac{11}{4}x^{3-1} = \frac{33}{4}x^2 +$
$\frac{7}{3}x^2 = \frac{14}{33}x$
$y' = \frac{33}{4}x^2 + \frac{14}{33}x$
9.- $Y = (1+2x)^2$
$y' = \frac{d}{dx}(1+2x)^2 \quad \frac{d}{dx}(1+2x)^0$
$y' = 2(1+2x)^{2-1} \cdot$
$y' = 2(1+2x) \cdot (2)$
$y' = 4(1+2x)$


3.- $y = 11 - 2x^2 - 6x^3 = -4x - 18x^2$
5.- $y = \frac{5}{3x-4}$ u v
$u = 5$ $v = 3x-4$
$du = 0$ $dv = 3x$
$\frac{vdu - udv}{v^2}$
$3x-4(0)-5(3x)$
$y' = \frac{15x}{(3x-4)^2}$
4.- $y = \frac{x}{x^2-8x}$ u v
$\frac{vdu-udv}{v^2}$
$u = x$ $v = x^2-8x$
$du = 1$ $dv 2x-8$
$y' = x^2-8x(1) - x(2x-8)$
$x^2-8x-2x^2-8x$
Norma



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6.- $y = \frac{(3x+2)}{2x-1}\ \frac{u}{v}$ $\qquad \frac{v du - u dv}{v^2}$

$u = 3x+2 \qquad v = 2x-1$

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

$y' = 2x-1\,(3x) - 3x+2\,(2x)$

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

7.- $y = \frac{3x^2+1}{2x}\ \frac{u}{v}$ $\qquad \frac{v du - u dv}{v^2}$

$u = 3x^2+1 \qquad v = 2x$

$du = 6x \qquad dv = 2x$

$y' = 2x\,(6x) - 3x^2\,(2x)$

$y = \frac{12x^2 - 6x^4}{(2x)^2}$

$= \frac{2x^2 - 6x^4}{4x^2}$

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

8.- $y = \frac{5}{4+x^2}\ \frac{u}{v}$ $\qquad \frac{v du + u dv}{v^2}$

$u = 5 \qquad v = 4+x^2$

$du = 0 \qquad dv = 2x$

$y' = 4+x^2\,(0) - 5\,(2x)$

$y' = \frac{10x}{(4+x^2)^2}$

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$y = x^2 \cos x^2$ (u, v) $\quad U \cdot V = u dv + v du$

$u = x^2 \qquad v = \cos x^2$

$du = 2x \qquad dv = \text{sen } x^2 \cdot \frac{d}{dx}(x^2)$

$dv = 2x \text{ sen } x^2$

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

$\boxed{y' = 2x^3 \text{ sen } x^2 + 2x \cos x^2}$

$y = \frac{x^2 \; u}{\cos x^2 \; v} \qquad \frac{y}{v} = \frac{v du - u dv}{v^2}$

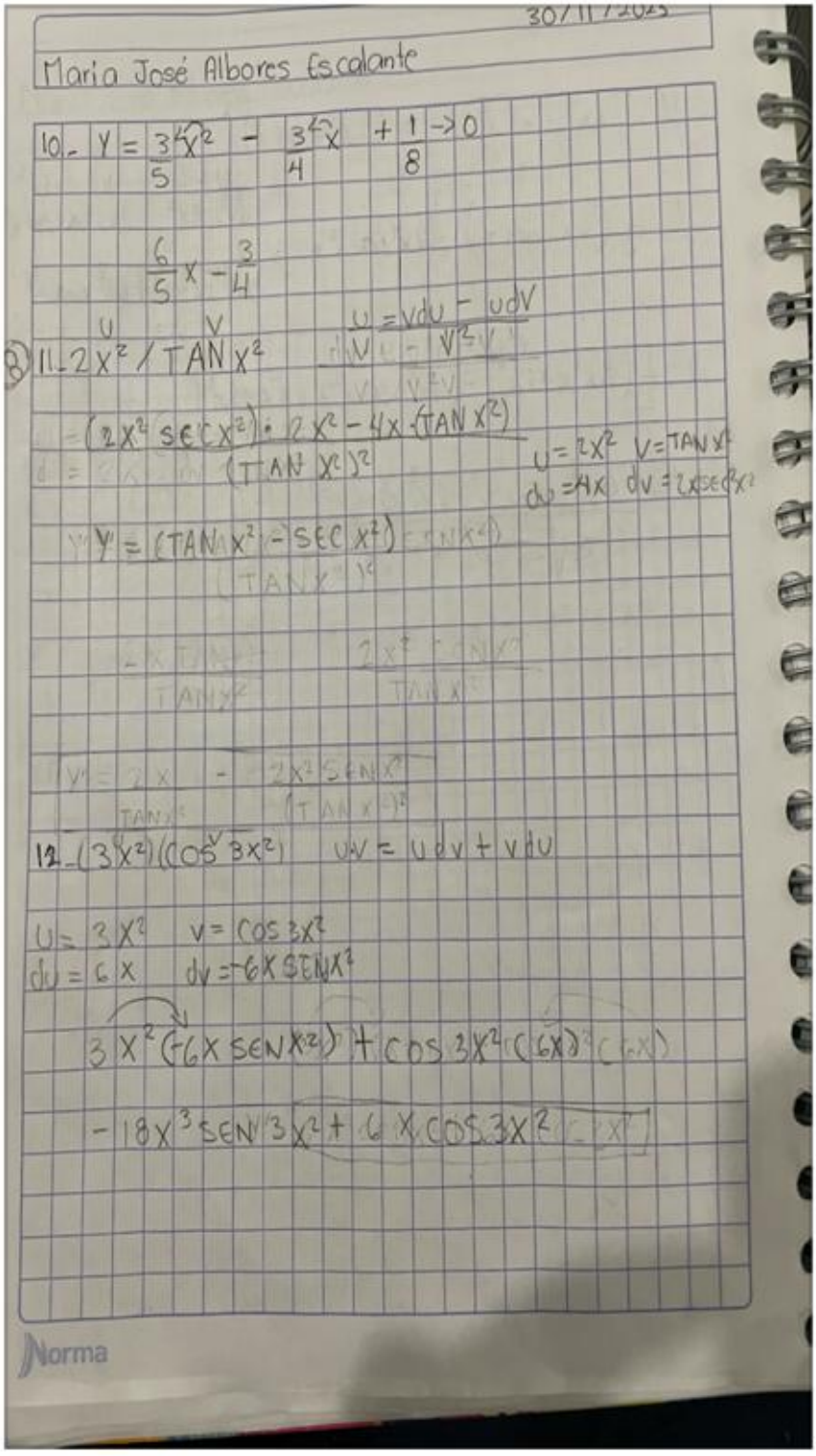
$u = x^2 \qquad v = \cos x^2$

$du = 2x \qquad dv = 2 \text{sen } x^2$

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

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

$y' = \frac{2x}{\cos x^2} - \frac{2x \text{ sen } x^2}{(\cos x^2)^2}$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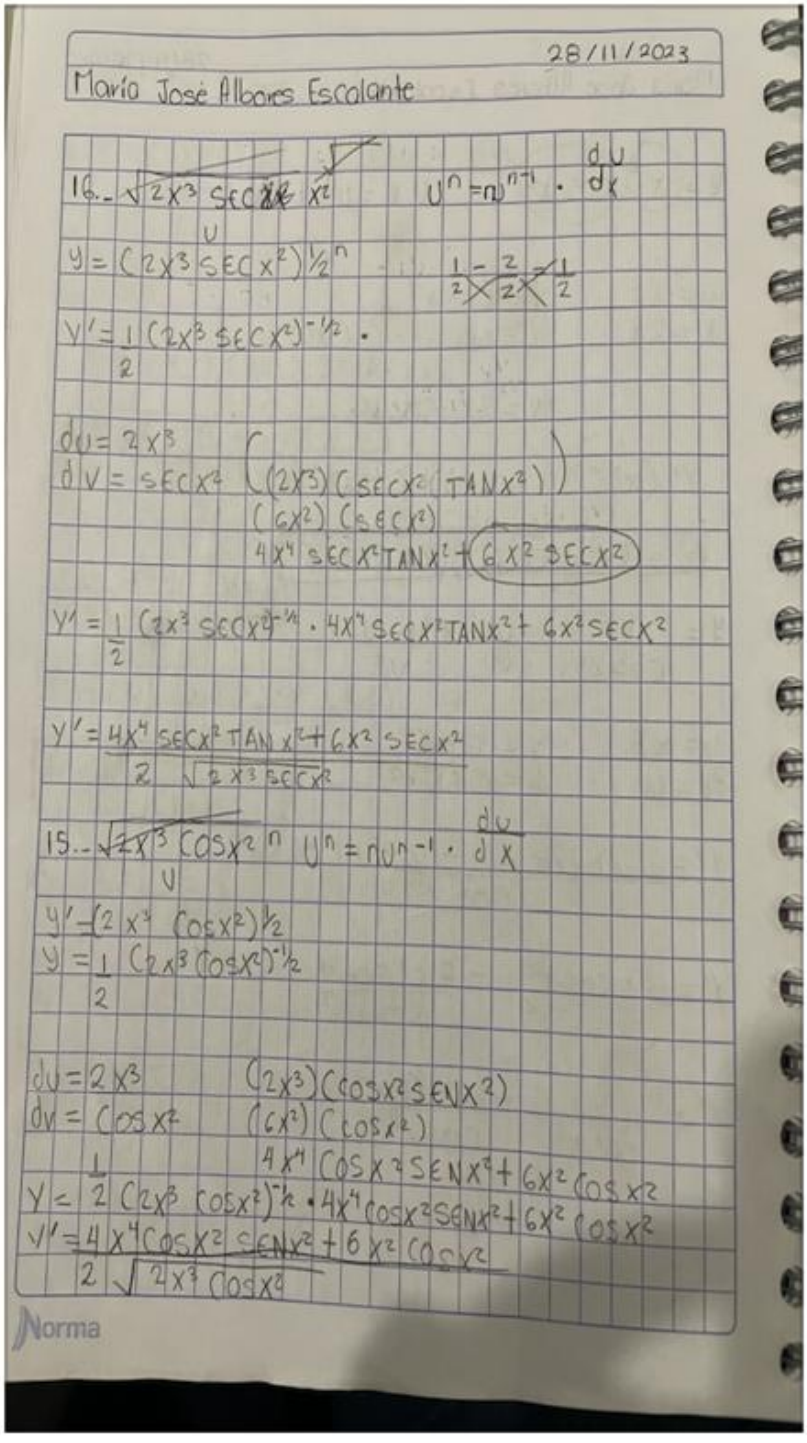
10.- $y = \frac{3}{5}x^2 - \frac{3}{4}x + \frac{1}{8} \to 0$
$\frac{6}{5}x - \frac{3}{4}$
11.- $2x^2 / \tan x^2$
$\frac{u}{v} = \frac{v\,du - u\,dv}{v^2}$
$= \frac{(2x^2 \sec(x^2)) \cdot 2x^2 - 4x \cdot (\tan x^2)}{(\tan x^2)^2}$
$u = 2x^2 \quad v = \tan x^2$
$du = 4x \quad dv = 2x \sec^2 x^2$
$y' = (\tan x^2 - \sec(x^2))$
12.- $(3x^2)(\cos 3x^2)$
$uv = u\,dv + v\,du$
$u = 3x^2 \quad v = \cos 3x^2$
$du = 6x \quad dv = -6x \operatorname{sen} x^2$
$3x^2(-6x \operatorname{sen} x^2) + \cos 3x^2 (6x)$
$-18x^3 \operatorname{sen} 3x^2 + 6x \cos 3x^2$
Norma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16.- $\sqrt{2x^3 \sec x^2}$
$y = (2x^3 \sec x^2)^{1/2}$
$y' = \frac{1}{2}(2x^3 \sec x^2)^{-1/2} \cdot$
$du = 2x^3$
$dv = \sec x^2 \tan x^2$
$(2x^3)(\sec x^2 \tan x^2)$
$(6x^2)(\sec x^2)$
$4x^4 \sec x^2 \tan x^2 + 6x^2 \sec x^2$
$y' = \frac{1}{2}(2x^3 \sec x^2)^{-1/2} \cdot 4x^4 \sec x^2 \tan x^2 + 6x^2 \sec x^2$
$y' = \frac{4x^4 \sec x^2 \tan x^2 + 6x^2 \sec x^2}{2\sqrt{2x^3 \sec x^2}}$
15.- $\sqrt{x^3 \cos x^2}$
$y' = (2x^3 (\cos x^2)^{1/2}$
$y = \frac{1}{2}(2x^3 (\cos x^2)^{-1/2}$
$du = 2x^3$
$dv = \cos x^2$
$(2x^3)(\cos x^2 \operatorname{sen} x^2)$
$(6x^2)(\cos x^2)$
$4x^4 \cos x^2 \operatorname{sen} x^2 + 6x^2 \cos x^2$
$y = \frac{1}{2}(2x^3 \cos x^2)^{-1/2} \cdot 4x^4 \cos x^2 \operatorname{sen} x^2 + 6x^2 \cos x^2$
$y' = \frac{4x^4 \cos x^2 \operatorname{sen} x^2 + 6x^2 \cos x^2}{2\sqrt{2x^3 \cos x^2}}$
Norma

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Cálculo

19.- $y = (\underbrace{\cos 2x^3}_{u})^3$ $u' = nu^{n-1}$ $\frac{du}{dx}$

$u = \cos 2x^3$

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

$du = 6x^2 \cdot \operatorname{sen} 2x^3$

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

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

20.- $y = (\underbrace{\operatorname{sen} x^2}_{u})^{-2}$ $u' = nu^{n-1}$ $\frac{du}{dx}$

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

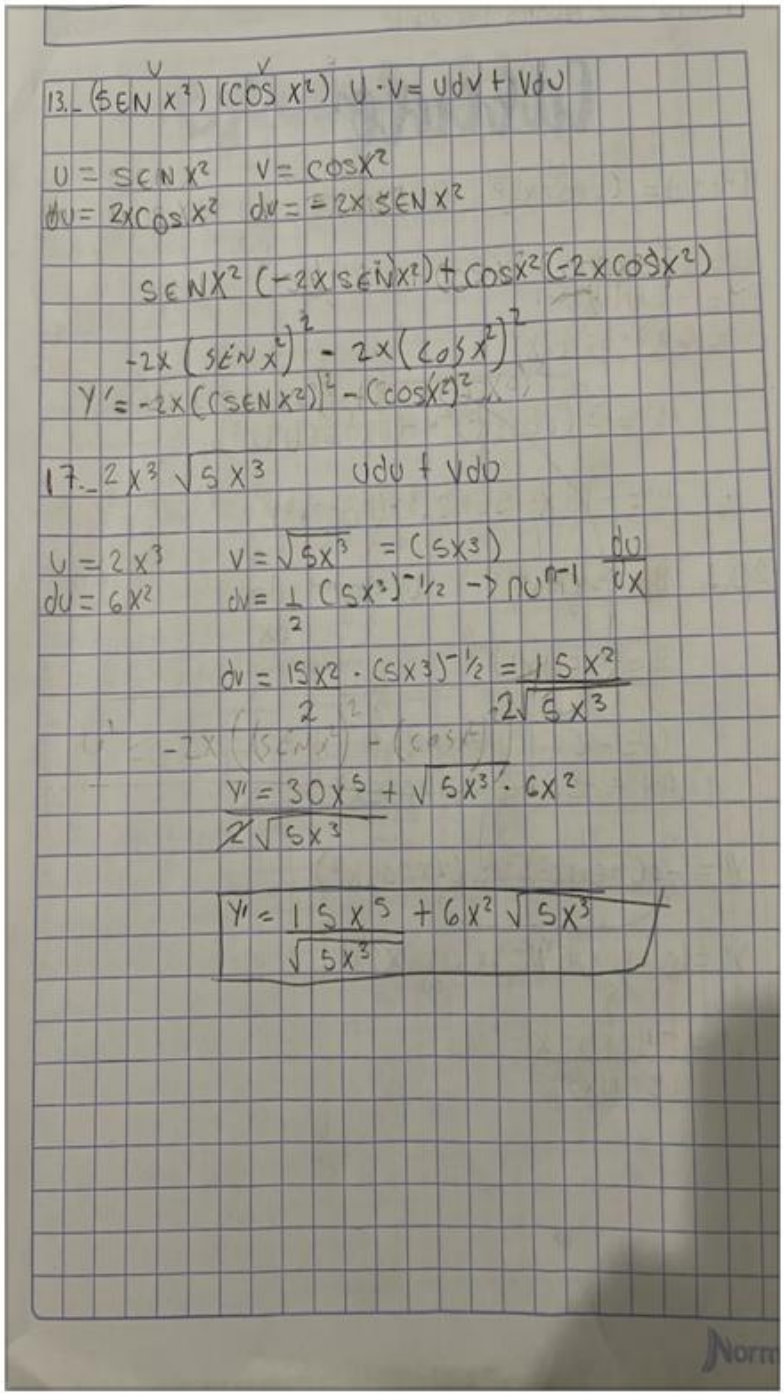
$n = -2$ $u = \operatorname{sen} x^2$

$n+1 = -3$ $du = 2x \cos x^2$

$y' = \underbrace{-2}_{n}(\underbrace{\operatorname{sen} x^2}_{u})^{-3} \cdot \underbrace{(2x \cos x^2)}_{du}$

$y' = (\underbrace{\operatorname{sen} x^2}_{dx})^{-3} \cdot (\underbrace{-4x \cos x^2}_{du})$

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



13._ $(\underset{u}{\text{SEN}}\, x^3)(\underset{v}{\cos} x^2)$ $u \cdot v = u\,dv + v\,du$

$u = \text{SEN}\, x^2 \quad v = \cos x^2$

$du = 2x\cos x^2 \quad dv = -2x\,\text{SEN}\, x^2$

$\text{SEN}\, x^2(-2x\,\text{SEN}\, x^2) + \cos x^2(-2x\cos x^2)$

$-2x(\text{SEN}\, x^2)^2 - 2x(\cos x^2)^2$

$y' = -2x[(\text{SEN}\, x^2)^2 - (\cos x^2)^2]$

17._ $2x^3\sqrt{5x^3}$ $u\,du + v\,du$

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

$du = 6x^2 \quad dv = \frac{1}{2}(5x^3)^{-1/2} \to nu^{n-1}\frac{du}{dx}$

$dv = \frac{15x^2}{2}\cdot(5x^3)^{-1/2} = \frac{15x^2}{2\sqrt{5x^3}}$

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

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

Plataforma

1.- $y = (2x^3 - 6x^2) - (7x + 11)$

$y' = \frac{d}{dx}(2x^3 - 6x^2)$

$y' = \frac{d}{dx}(2x^3) - \frac{d}{dx}(6x^2)$

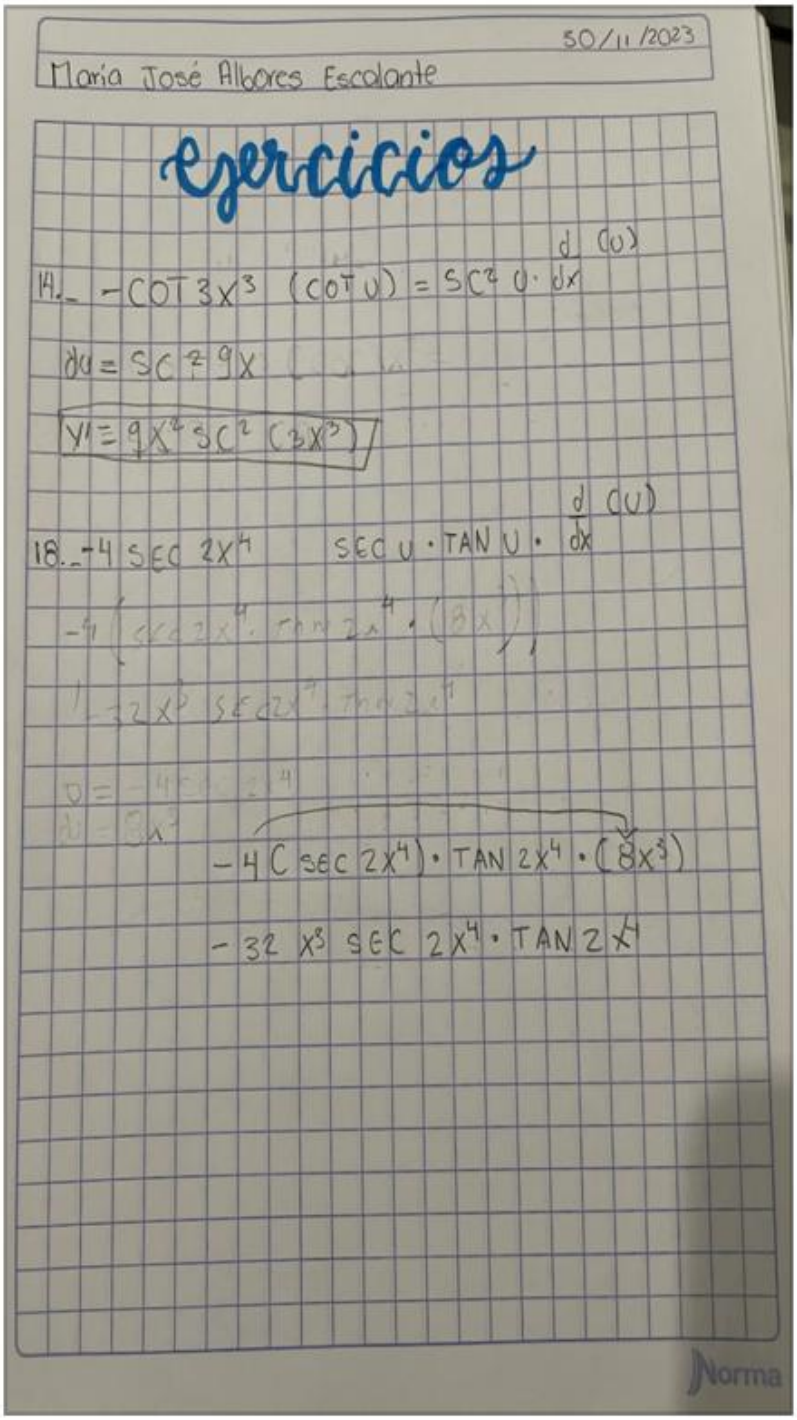
$y = 3(2)x^{3-1} - 2(6)x^{2-1}$

$\boxed{y' = 6x^2 - 12x}$

$y' = \frac{d}{dx}(7x + 11)$

$y' = \frac{d}{dx}(7x) + \frac{d}{dx}(11)$

$y' = 0\ 7$



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ejercicios

14.- $-\cot 3x^3 \quad (\cot u) = \csc^2 u \cdot \frac{d}{dx}(u)$

$du = \csc^2 9x$

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

18.- $-4 \sec 2x^4 \quad \sec u \cdot \tan u \cdot \frac{d}{dx}(u)$

$-4 (\sec 2x^4 \cdot \tan 2x^4 \cdot (8x^3))$

$-32 x^3 \sec 2x^4 \cdot \tan 2x^4$

$-4 (\sec 2x^4) \cdot \tan 2x^4 \cdot (8x^3)$

$-32 x^3 \sec 2x^4 \cdot \tan 2x^4$

Norma