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INSTRUCCIONES: Resuelve de forma clara y correcta las siguientes ecuaciones.

(LOS NUMEROS -1 SON EXPONENTES;LOS NUMEROS DESPUES DE LAS FUNCIONES TRIGONOMETRICAS SON EXPOENTES Y LOS NUMEROS DESPUES DE LAS VRIABLES SON POTENCIAS)

1.- ∫ sen-1 3x2 dx

$$① \int sen^{-1}\, 3x^2\, dx \qquad v = sen^{-1} \qquad dv = dx$$

$$3x^2 - sen^{-1} - \int x\, \frac{1}{\sqrt{1-x^4}}\, dx \qquad v = \frac{1}{\sqrt{1-3x^2}^2}\, dx \qquad v = x$$

$$3x^2 - sen^{-1} - \int x - \sqrt{1-9x^4}^{-1}\, dx$$

$$3x^2 - sen^{-1} - \int (1-9x^4)^{-1/2} - 2x^3\, dx$$

$$3x^2 \cdot sen^{-1} - \left(\frac{1}{36x^3}\right) \int (1-9x^4)^{-1/2} - 36x^3\, dx$$

$$3x^2 \cdot sen^{-1} + \frac{1}{38} \cdot \frac{(1.9x4)^{-1/2+1}}{-\frac{1}{2}+1} + 6$$

$$3x^2 - sen^{-1} + \frac{1}{36} \cdot \frac{(1-9x^4)^{1/2}}{\frac{1}{2}}$$

$$3x^2 \cdot sen^{-1} + \frac{1}{36} \cdot 2(1-9x^4)^{1/2}$$

$$3x^2 \cdot sen^{-1} + \frac{2(1-9x^4)}{36}$$

2.- ∫ cos-1 5x dx

(2)

$\cos -1\ 5x \quad dx \qquad v = \frac{-1}{\sqrt{1-x^2}}$

$5x \cdot \cos^{-1} + \int \frac{1}{\sqrt{1-25x^2}} \, x \, dx$

$5x \cos^{-1} + \int (1-25x^2)^{-1/2} \cdot x \, dx$

$5x - \cos^{-1} + \frac{1}{50} \int (1-25x^2)^{-1/2} \cdot 50x \, dx$

$-1/2+C$

$5x - \cos^{-1} + \frac{1}{50} \int \frac{(1-25x^2)}{-\frac{1}{2}+1} \cdot 50x \, dx$

$5x \cdot \cos^{-1} + \frac{1}{50} \int \frac{(1-25x^2)^{1/2}}{\frac{1}{2}} + C$

$5x \cdot \cos^{-1} + 1/50 \int (1-25x^2)^{1/2} + C$

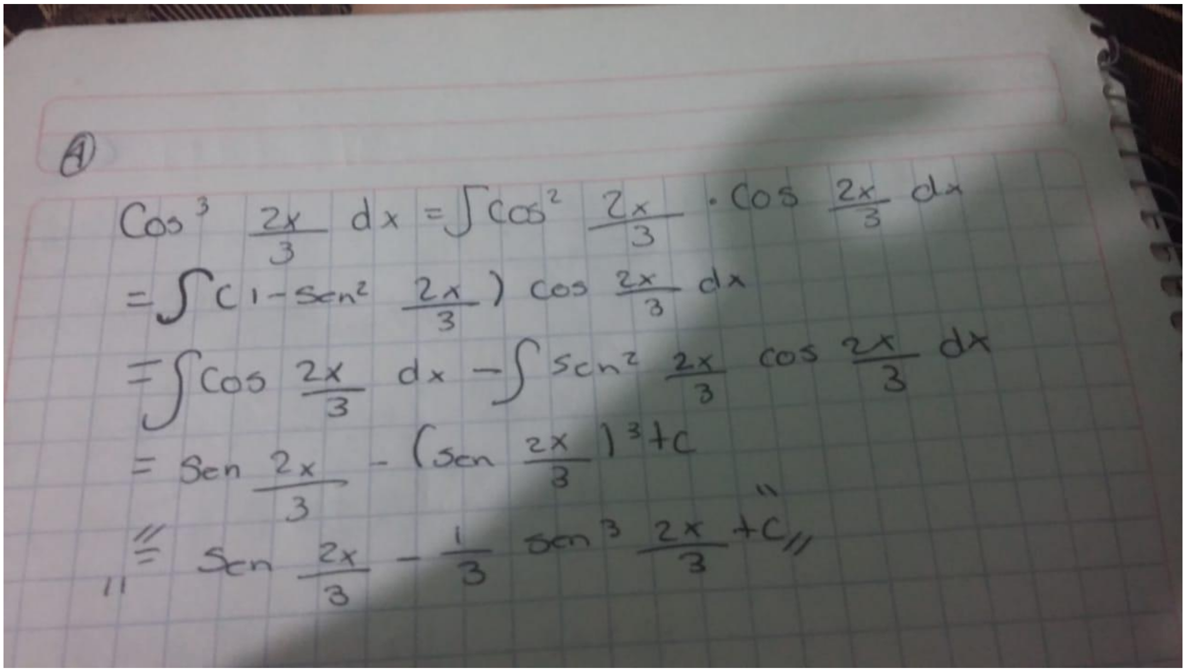
$5x - \cos^{-1} + \frac{2(1+25x^2)^{1/2} + C}{50}$

$5x - \cos^{-1} + \frac{(1+25x^2)^{1/2} + C}{25}$

$5x - \cos^{-1} + \frac{(1+25x^2)^{1/2} + C}{25}$ //

3.- ∫ tan -1 1/x2   dx

4.- ∫ cos3 2x/3 dx



(4)

$\cos^3 \frac{2x}{3}\, dx = \int \cos^2 \frac{2x}{3} \cdot \cos \frac{2x}{3}\, dx$

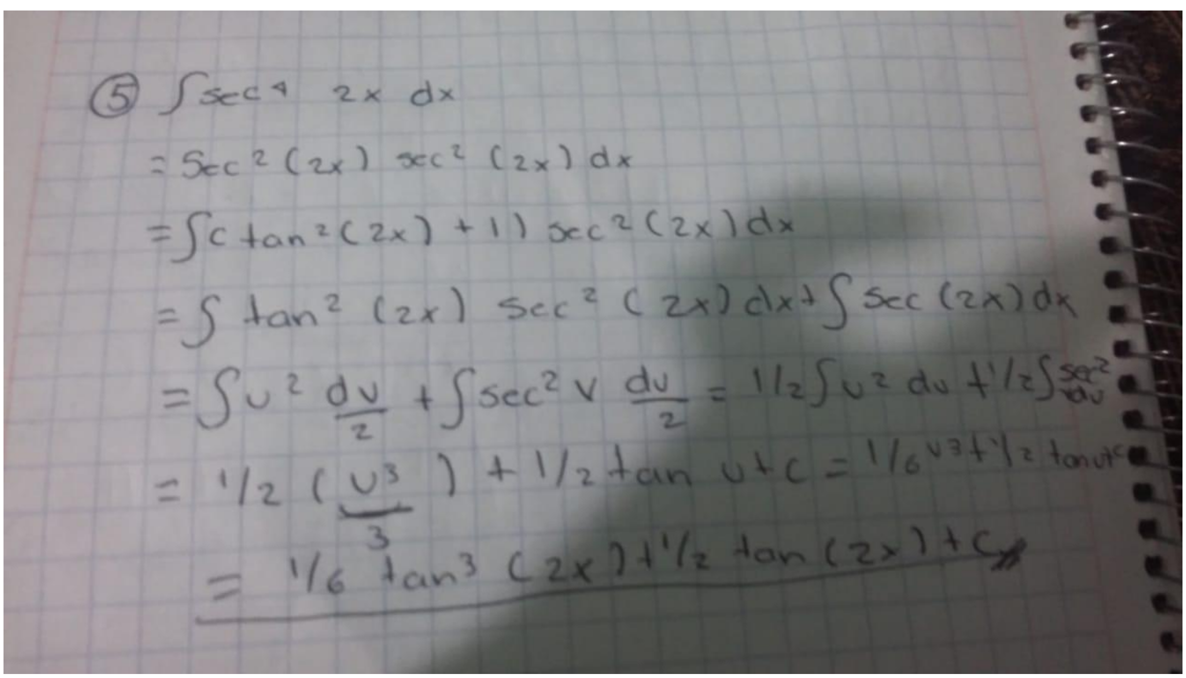
$= \int (1 - \operatorname{sen}^2 \frac{2x}{3}) \cos \frac{2x}{3}\, dx$

$= \int \cos \frac{2x}{3}\, dx - \int \operatorname{sen}^2 \frac{2x}{3} \cos \frac{2x}{3}\, dx$

$= \operatorname{sen} \frac{2x}{3} - (\operatorname{sen} \frac{2x}{3})^3 + C$

$= \operatorname{sen} \frac{2x}{3} - \frac{1}{3} \operatorname{sen}^3 \frac{2x}{3} + C$

5.- ∫ sec4 2x dx



(5) $\int \sec^4 2x\, dx$

$= \sec^2(2x)\sec^2(2x)\, dx$

$= \int (\tan^2(2x) + 1)\sec^2(2x)\, dx$

$= \int \tan^2(2x)\sec^2(2x)\, dx + \int \sec(2x)\, dx$

$= \int u^2 \frac{du}{2} + \int \sec^2 v \frac{du}{2} = 1/2 \int u^2\, du + 1/2 \int \sec^2 u\, du$

$= 1/2 \left(\frac{u^3}{3}\right) + 1/2 \tan u + C = 1/6\, u^3 + 1/2 \tan u + C$

$= 1/6 \tan^3(2x) + 1/2 \tan(2x) + C$

6.- ∫ csc-1 2x2 dx

(6)

$\int csc^{-1} 2x^2 dx \quad v = cs^{-1} \int u dv = uv - \int v du \quad dv = dx$

$= 2x^2 \cdot csc^{-1} - \int x \frac{-1}{x\sqrt{x^2-1}} dx, \quad du = \frac{-1}{x\sqrt{x^2-1}} dx \quad v = x$

$= 2x^2 \cdot csc^{-1} \int \frac{-1}{\sqrt{x^2-1}} dx \quad \int \frac{du}{\sqrt{v^2-a^2}} = \ln |v + \sqrt{v^2 a^2}$

$= 2x^2 \cdot csc^{-1} \ln |x + \sqrt{x^2-1} + c$ //

7.- ∫ cot-1 √2 x dx

(7) $cot^{-1} \sqrt{2} x dx$

$\int arc \ cot \sqrt{2x} \ dx$

$v = \sqrt{2x}$

$V = \sqrt{(2x)}\ ^1/2$

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

$(2x)^{-1/2}$

$dv \sqrt{\frac{2}{2}} x^{-1/2} dx$

$x \ arccotc \sqrt{2x} + \sqrt{\frac{2}{2}} \sqrt{x} + 1/2 \ arctan (\sqrt{2x}) + c$

8.- ∫ sen-1 √2 x2 dx

(8)

$\operatorname{Sen}^{-1} \sqrt{2x2} \qquad v = \sqrt{2x^2}$

$\frac{d}{dx}\left(\sqrt{2x^2}\right)$

$F(x) = x^n \quad f'(x) = n x^{n-1}$

$1/2\,(2x^2)^{-1/2} \frac{d}{dx}(2x^2)$

$(2x^2)^{-1/2} \frac{d}{dx}(x^2)$

$2x\,(2x^2)^{-1/2} \quad du \sqrt{2}dx$

$\underline{x \arcsin(\sqrt{2x^2}) + \sqrt{\tfrac{2}{2}}\,\sqrt{(1-2x^2)} + C}$ //

9.- ∫ senh 1 / x2 dx

(9)

$\operatorname{Senh}\frac{1}{2}\,dx = \ln\left(u + \sqrt{(x^2+1)}\right)$

$\int \frac{1.h752}{x^2}\,dx \qquad \frac{am}{an} = am \cdot n$

$\int 1.1752x^{-2}\,dx \qquad m=$

$\boxed{11.1752x^{-2} + C}$