① $\int sen^{-1} 3x^2 \, dx$ $u = sen^{-1}$ $du = dx$

$v = x$

$3x^2 \cdot sen^{-1} - \int x \cdot \frac{1}{\sqrt{1-9x^4}} \, dx$ $u = \frac{1}{\sqrt{1(3x^2)^2}} \, dx$

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

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

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

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

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

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

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PABLO CORDOVA SANTIZ

$du = dx$

$U = x$

(2) $\cos^{-1} 5x \, dx$

$V = \frac{-1}{\sqrt{1-x^2}}$

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

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

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

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

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

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

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

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

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

④ $\cos^3 \frac{2x}{3}\, dx = \int \cos^2 \frac{2x}{3} \cdot \cos \frac{2x}{3}\, dx$

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

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

$= \text{sen}\, \frac{2x}{3} - \frac{\left(\text{sen} \frac{2x}{3}\right)^3}{3} + c$

$= \text{sen}\, \frac{2x}{3} - \frac{1}{3} \text{sen}^3 \frac{2x}{3} + c$

⑤ $\int \sec^4 2x\, dx$

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

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

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

$= \int v^2 \frac{dv}{2} + \int \sec^2 v \frac{dv}{2} = \frac{1}{2} \int v^2 dv + \frac{1}{2} \int \sec^2 v\, dv$

$= \frac{1}{2}\left(\frac{v^3}{3}\right) + \frac{1}{2} \tan v + c = \frac{1}{6} v^3 + \frac{1}{2} \tan v + c$

$= \frac{1}{6} \tan^3(2x) + \frac{1}{2} \tan(2x) + C$

Escaneado con CamScanner

$\int u\,dv = uv - \int v\,du$

(6) $\int \csc^{-1} 2x^2\,dx$ $\quad v = \csc^{-1} \quad dv = dx$

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

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

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

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

$\int \operatorname{arccot} \sqrt{2x}\,dx$

$v = \sqrt{2x}$

$v = (2x)^{1/2}$

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

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

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

$x \operatorname{arccot}(\sqrt{2x}) + \sqrt{\frac{2}{2}} \sqrt{x} - \frac{1}{2} \arctan(\sqrt{2x}) + C$

(8) $Sen^{-1}\sqrt{2x^2}$

$v = \sqrt{2x^2}$

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

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

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

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

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

$x\arcsin(\sqrt{2x^2}) + \frac{\sqrt{2}}{2}\sqrt{(1-2x^2)}+C$

(9) $Senh\frac{1}{x^2}dx = \ln(v+\sqrt{(x^2+1)})$

$\int\frac{1.1752}{x^2}dx \quad \frac{a^m}{a^n} = a^{m-n}$

$m=0$

$\int 1.1752x^{-2}dx$

$1.1752x^{-2}+C$

Escaneado con CamScanner

(10) $\int \operatorname{senh}^2 x \, dx$ $dx = \int \left(\frac{e^{x} - e^{-x}}{2}\right)^2 dx$

$= \int \frac{(e^{x} - e^{-x})^2}{4} dx = \frac{1}{4} (e^{x})^2 - 2 + (e^{-x})^2 dx$

$= \frac{1}{4} \int e^{2x} - 2 + e^{-2x} dx$

$= \frac{1}{4} \left(\frac{1}{2} e^{2x} - 2x + (-\frac{1}{2} e^{-2x}\right) + c$

$= -\frac{1}{2}x + \frac{1}{4} \left(\frac{e^{2x} - e^{-2x}}{2}\right) + c$

$\boxed{= -\frac{1}{2}x + \frac{1}{4} \sinh(2x) + c}$