1. $\int \text{Sen}^{-1} 3x^2 dx$

$$\int \tan^{-1} \frac{1}{x^2} dx = \int \arctan\left(\frac{1}{2x}\right) dx = \int \text{arc}\cot(x^2)\, dx$$

$$= x \,\text{arc}\cot(x^2) - \int -\frac{2x^2}{x^4+1} dx$$

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

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

$$\frac{1}{2^{3/2}} \int \frac{x}{x^2-\sqrt{2x+1}} dx - \frac{1}{2^{3/2}} \int \frac{x}{x^2+\sqrt{2x+1}}$$

$$= \int \left(\frac{2x-\sqrt{2}}{2(x^2-\sqrt{2x+}} \right) + \frac{1}{\sqrt{2}\,(x_2-\sqrt{2x+1}} dx$$

$$\frac{1}{2} \int \frac{2x\,1\sqrt{2}}{x^2+\sqrt{2x+1}} + \frac{1}{\sqrt{2}} \int \frac{1}{x^2-\sqrt{2x+1}}$$

$$= \ln\left(\frac{x^2-\sqrt{2x+1}}{2}\right) + \arctan(\sqrt{2x}-1)$$

$$= \ln x^2 + \sqrt{2x+1} + \arctan(\sqrt{2x}+1$$

$$= 2\left(\frac{-\ln(x^2+\sqrt{2}x+1)}{2^{3/2}}\right) + \frac{\ln(x^2-\sqrt{2}x+1)}{2^{3/2}}$$

$$\boxed{\begin{aligned} &= 2\ln(x^2+\sqrt{2}x+1) - 2\ln(x^2-\sqrt{2}x+1 - \arctan\left(\frac{2x+\sqrt{2}}{\sqrt{2}}\right. \\ &- 4\arctan\left(\frac{2x-\sqrt{2}}{\sqrt{2}}\right) - 2^{5/2}\arctan\left(\frac{1}{x^2}\right)x + C \end{aligned}}$$

$2\cot^{-1}\sqrt{2x} = \int \operatorname{arccot}(\sqrt{2}\sqrt{x})\,dx$

$= \operatorname{arccot}(\sqrt{2}\sqrt{x})x + \frac{\sqrt{x}}{\sqrt{2}(2x+1)}\,dx$

$$\boxed{= \operatorname{arccot}(\sqrt{2}\sqrt{x})x + \frac{\sqrt{x}}{\sqrt{2}}\,\frac{\arctan(\sqrt{2}\sqrt{x})}{2} + C}$$

3.

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

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

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

$\operatorname{Sen} \frac{2x}{3} - (\operatorname{sen} \frac{2x}{3})^3 + c$

$\boxed{\operatorname{Sen} \frac{2x}{3} - \frac{1}{3} \operatorname{sen}^3 \frac{2}{3} x + c}$

$5.\ \operatorname{Sec}^4 2x\, dx$

$\operatorname{Sec}^2 (2x)\ \operatorname{Sec} (2x)\, dx$

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

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

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

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

6.- $\csc^{-1} 2x^2 dx$

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

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

$\boxed{2x^2 \cdot \csc^{-} \ln x + \sqrt{x^2-1+c}}$

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

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

$v = \sqrt{2x}$

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

$\frac{d}{dx} (\sqrt{2x}) \, ½ (2x)^{1/2} \, \frac{d}{dv} (2x)$

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

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

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

8.- $\operatorname{Sen}^{-1}\sqrt{2x^2}$

$V=\sqrt{2x2}$

$\frac{d}{dx}(2x2)$

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

$1/2(2x^2)^{-1/2}\frac{d}{dx}(2x2)$

$(2x2)^{-1/2}\frac{d}{dx}(x^2$

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

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

9.- $\operatorname{Senh}\frac{1}{x^2}dx=\ln(u+\sqrt{cx^2+1})$

$\frac{S1{\cdot}h+S2}{x^2}dx$ $\qquad \frac{am}{an}=amn$

$\int 1.175x^{-2}dx$

$\boxed{1.1752x^{-2}+C}$