

NUMERO 11/13/14

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$$1) \int \frac{2x}{\sqrt{4x^2-1}} dx$$

$$u = 4x^2 - 1$$

$$\frac{du}{dx} = 8x$$

$$\frac{dx}{du} = \frac{1}{8x}$$

$$dx = \frac{du}{8x}$$

$$\int \frac{2x}{\sqrt{u}} \cdot \frac{du}{8x}$$

$$= \frac{1}{4} \int \frac{du}{\sqrt{u}}$$

$$= \frac{1}{4} \int u^{-1/2} du$$

$$= \frac{1}{4} \frac{u^{1/2}}{1/2} + C$$

$$= \frac{2}{4} u^{1/2} + C$$

$$= \frac{1}{2} \sqrt{4x^2-1} + C$$

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

$$= \text{let } u = \sin^{-1}x$$

$$du = (1-x^2)^{-1/2} dx$$

$$\int u du = \frac{u^2}{2} + C$$

$$= \frac{(\sin^{-1}x)^2}{2} + C$$

$$3) \int (\tan x)^6 (\sec^2 x) dx$$

us tanx

$$\text{let } u = \sec^2 x dx$$

we know

$$\int u^6 du = \frac{u^7}{7} + C$$

$$= \frac{(\tan x)^7}{7} + C$$