

$$= \frac{(5m-1)x^2}{2} + c$$

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

let $u = \tan x$

$$du = \sec^2 x \, dx$$

we have

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

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

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 MATH104

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

Let $u = \sqrt{4x^2-1} = (4x^2-1)^{1/2}$

$\frac{du}{dx} = \frac{1}{2}(4x^2-1)^{-1/2} \cdot 8x$

$du = 4x(4x^2-1)^{-1/2} dx$

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

$= \frac{1}{2} u + C$

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

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

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

Let $u = \sin^{-1} x$

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

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