$y = 2x \longrightarrow y' = 2$

$y = x^2 \longrightarrow y' = 2x$

$\int 2x\,dx = x^2 + c$

costante

$y = 3x^2 + 2x + 1 \longrightarrow y' = 6x + 2$

$y = 3x^4$ (c costante, 1 = 4)

$y' = 3 \cdot 4x^3 = 12x^3$

$f(x) \pm g(x) \longrightarrow f'(x) \pm g'(x)$

$c\,f(x) \longrightarrow c\,f'(x)$

$y = 2\ln x + x^3 + 3\cos x$

$y' = \frac{2}{x} + 3x^2 + 3\cos x$

$$\int x^n dx = \frac{x^{n+1}}{n+1} + c$$

$y = x^n \rightarrow y' = n x^{n-1}$

$$\int (3x^2 + 2x)\, dx = \int 3x^2 dx + \int 2x\, dx =$$

$$= 3\int x^2 dx + 2\int x\, dx = \cancel{3}\cdot \frac{x^3}{\cancel{3}} + \cancel{2}\,\frac{x^2}{\cancel{2}} + c = x^3 + x^2 + c$$

$$\int \left(\frac{x^4}{4} + 3x - 2\right) dx = \int \frac{x^4}{4} dx + \int 3x\, dx - \int 2\, dx =$$

$$= \frac{1}{4}\int x^4 dx + 3\int x\, dx - 2\int 1\, dx = \frac{1}{4}\frac{x^5}{5} + \frac{3x^2}{2} - 2x + c$$

$$= \frac{1}{20}x^5 + \frac{3}{2}x^2 - 2x + c$$