

Teoremas básicos de integración

1. $\int dx = x + c$

2. $\int k dx = kx + c$

3. $\int u^n du = \frac{u^{n+1}}{n+1} + c$, donde $n \neq -1$

Cuando $u = x$, entonces:

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

4. $\int \frac{du}{u} = \int u^{-1} du = \ln u + c$, donde $n = -1$

Ejemplo

- $\int 8dx$

- Se aplica la formula 2. $\int k dx = kx + c$

$$\int 8dx = 8x + c$$

Resuelve las siguientes integrales mediante los teoremas básicos de integración.

- $\int 6dx = \int dx = \quad + c$

- $\int 4dx = \int dx = \quad + c$

- $\int 5dx = \int dx = \quad + c$

- $\int x^5 dx = \int x^5 = \frac{x^{5+1}}{5+1} + c = \frac{x^6}{6} + c =$
 $\int x^5 = \frac{x^6}{6} + c$
- $\int 2x^4 dx = \int 2x^4 dx = 2 \int x^4 dx = 2 \left(\frac{x^{4+1}}{4+1} \right) +$
 $c = \frac{2x^5}{5} + c$
- $\int \frac{6}{x^4} dx = \int 6x^{-4} dx = -\frac{6}{3} x^{-3} + c = -\frac{2}{x^3} + c$
- $\int 2\sqrt[3]{x} dx = \int 2x^{1/3} dx = \frac{2 \cdot 3}{3+1} x^{4/3} + c = \frac{3}{2} x^{4/3} + c$
- $\int \frac{dx}{\sqrt[4]{x^3}} = \int x^{-3/4} dx = \frac{4}{4-3} x^{-3/4+1} + c = 4x^{1/4} + c$
- $\int (5x^3 + 3x^2 - 2x + 4) dx = \frac{5x^4}{4} - \frac{2x^2}{2} + 4x + c = \frac{5x^4}{4} - x^2 + 4x + c$
- $\int (x+2)^5 dx = \frac{(x+2)^6}{6} + c$
- $\int 3 dx = 3x + c$
- $\int 10 dx = 10x + c$