

Ejercicios

① $\int e^{\ln x^2} x dx$
 $\int e^{\ln x^2} x dx = \int x^2 x dx = \int x^3 dx = \frac{x^4}{4} + C$

$\int e^{\ln x^2} x dx = \frac{x^4}{4} + C$ Formula: $\int x^n dx = \frac{x^{n+1}}{n+1}, n \neq -1$

② $\int 3a^7 x^6 dx$
 $\int 3a^7 x^6 dx = 3a^7 \int x^6 dx = 3a^7 \frac{x^7}{7} + C$

$\int 3a^7 x^6 dx = 3a^7 \frac{x^7}{7} + C$ Formula: $\int x^n dx = \frac{x^{n+1}}{n+1}, n \neq -1$

③ $\int (3x^2 + 2x + 1) dx$

$\int (3x^2 + 2x + 1) dx = \int (3x^2 + 2x + 1) dx =$

$\int 3x^2 dx + \int 2x dx + \int dx =$

$3 \int x^2 dx + 2 \int x dx + \int dx = 3 \frac{x^3}{3} + 2 \frac{x^2}{2} + x + C$
 $= x^3 + x^2 + x + C$

$\int (3x^2 + 2x + 1) dx = x^3 + x^2 + x + C$

④ $\int 3x^4 dx$

$\int 3x^4 dx = \frac{3}{4+1} x^{4+1} + C$

$\int 3x^4 dx = \frac{3}{5} x^5 + C$

$$\textcircled{5} \int 2x^7 dx$$

$$\int 2x^7 dx = \frac{2}{7+1} x^{7+1} + C$$

$$\int 2x^7 dx = \frac{1}{4} x^8 + C$$

$$\textcircled{6} \int 4x\sqrt{x} dx$$

$$= \int 4x^{3/2} dx$$

$$= \frac{4x^{3/2+1}}{\frac{3}{2}+1} + C$$

$$= \frac{4x^{5/2}}{5/2} + C$$

$$= \frac{8}{5} x^{5/2} + C$$

$$\textcircled{7} \int (2x^3 - 8x + 5) dx =$$

$$\int 2x^3 dx - \int 8x dx + \int 5 dx$$

$$= 2 \int x^3 dx - 8 \int x dx + 5 \int dx$$

$$= 2 \left[\frac{x^{3+1}}{3+1} \right] - 8 \left[\frac{x^{1+1}}{1+1} \right] + 5 [x] + C$$

$$= 2 \left(\frac{x^4}{4} \right) - 8 \left(\frac{x^2}{2} \right) + 5x + C$$

$$\frac{1}{2} x^4 - 4x^2 + 5x + C$$

$$\textcircled{8} \int (a + bx^3)^2 dx$$

$$\int (a + bx^3)^2 dx = \int (a^2 + 2abx^3 + b^2x^6) dx =$$

$$\int a^2 dx + \int 2abx^3 dx + \int b^2x^6 dx$$

$$= a^2 \int dx + 2ab \int x^3 dx + b^2 \int x^6 dx = a^2x +$$

$$2ab \frac{x^4}{4} + b^2 \frac{x^7}{7} + C$$

$$= \int (a + bx^3)^2 dx = a^2x + \frac{2abx^4}{2} + \frac{b^2x^7}{7} + C$$

$$\textcircled{9} \int \sqrt{2px} dx$$

$$\int \sqrt{2px} dx = \int \sqrt{2p} \sqrt{x} dx = \sqrt{2p} \int x^{\frac{1}{2}} dx = \sqrt{2p}$$

$$\sqrt{2p} \frac{x^{\frac{1}{2}+1}}{\frac{1}{2}+1} + C = \frac{2\sqrt{2px}^{\frac{2}{3}}}{\frac{3}{3}} + C$$

$$\int \sqrt{2px} dx = \frac{2\sqrt{2px} \sqrt{x}}{3} + C$$

$$\textcircled{10} \int (2x^4 - 5x + 3) dx$$

$$= \int 2x^4 dx - \int 5x dx + \int 3 dx$$

$$= \int 2x^4 dx - \int 5x dx + \int 3 dx$$

$$= \frac{2x^{4+1}}{4+1} + C_1 - \frac{5x^{1+1}}{1+1} + C_2 + 3x + C_3$$

$$= \frac{2x^5}{5} - \frac{5x^2}{2} + 3x + C$$

Scribe