Resolução

01. Calcule a integral de:

a) $\int \frac{1}{x^3} dx$

$\int x^{-3} dx$

$\frac{x^{-2}}{-2}$

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

b) $\int (8x^4 + 4x^3 - 6x^2 - 4x + 5) dx$

$\frac{8x^5}{5} + \frac{4x^4}{4} - \frac{6x^3}{3} - \frac{4x^2}{2} + 5x$

$\frac{8x^5}{5} + x^4 - 2x^3 - 2x^2 + 5x$

$\int (8x^4 + 4x^3 - 6x^3 - 4x + 5) dx = \frac{8x^5}{5} + x^4 - 2x^3 - 2x^2 + 5x + C$

c) $\int \frac{2}{\sqrt[3]{x}} dx$

$\int \frac{2}{x^{\frac{1}{3}}}$

$-\frac{1}{3} + 1 = \frac{2}{3}$

$\int 2x^{-\frac{1}{3}}$

$2 \cdot \frac{x^{\frac{2}{3}}}{\frac{2}{3}}$

$2 \cdot \frac{3}{2} \cdot x^{\frac{2}{3}}$

$3x^{\frac{2}{3}} \Rightarrow \int \frac{2}{\sqrt[3]{x}} dx = 3x^{\frac{2}{3}} + C$

d) $\int \frac{x+2}{x^4} dx$

$\int (x+2) x^{-4}$

$\int x^{-3} + 2x^{-4}$

$\frac{x^{-2}}{2} + \frac{2x^{-3}}{3}$

$\int \frac{x+2}{x^4} = \frac{x^{-2}}{2} + \frac{2x^{-3}}{3} + C$