

Integrales racionales

Resolver las siguientes integrales:

$$a) \int \frac{2x^2 - 7x - 6}{x^3 - x^2 - 2x} dx = 3 \ln |x| - 2 \ln |x - 2| + \ln |x + 1| + K$$

$$b) \int \frac{-2x^3 + 11x^2 - 12x + 4}{x^4 - 4x^3 + 4x^2} dx = -2 \ln |x| - \frac{1}{x} - \frac{2}{x - 2} + K$$

$$c) \int \frac{2x + 5}{x^2 - 4x + 13} dx = \ln |x^2 - 4x + 13| + 3 \operatorname{arctg} \left(\frac{x - 2}{3} \right) + K$$

$$d) \int \frac{x}{(x - 1)(x^2 - 1)} dx = \frac{1}{4} \ln |x - 1| - \frac{1}{2x - 2} - \frac{1}{4} \ln |x + 1| + K$$

$$e) \int \frac{1}{x^3 - 3x^2 + 2x} dx = \frac{1}{2} \ln |x - 2| - \ln |x - 1| + \frac{1}{2} \ln |x| + K$$

$$f) \int \frac{x^3}{x^2 - 1} dx = \frac{x^2}{2} + \frac{1}{2} \ln |x^2 - 1| + K$$

$$g) \int \frac{x^2 + x}{(1 - x)(1 + x^2)} dx = -\operatorname{arctg}(x) - \ln |x - 1| + K$$

$$h) \int \frac{3x^2 + 5x - 7}{x^3 - 2x^2 + x - 2} dx = 5 \operatorname{arctg}(x) + 3 \ln |x - 2| + K$$

$$i) \int \frac{x^2 - x}{x^3 + x^2 + x + 1} dx = -\operatorname{arctg}(x) + \ln |x + 1| + K$$

$$j) \int \frac{x^4 + 2x - 6}{x^3 + x^2 - 2x} dx = -x + \frac{x^2}{2} - \ln |x - 1| + 3 \ln |x| + \ln |x + 2| + K$$

$$k) \int \frac{x + 3}{x^3 - 3x^2 + 3x - 1} dx = -\frac{x + 1}{(x - 1)^3} + K$$

$$l) \int \frac{x^4}{(x - 1)^2} dx = 4 \ln |x - 1| + \frac{x^3}{3} + x^2 + 3x - \frac{1}{x - 1} + K$$

$$m) \int \frac{dx}{x^2 + 8x + 20} = \frac{1}{2} \operatorname{arctg} \left(\frac{x + 4}{2} \right) + K$$

$$n) \int \frac{5x - 11}{x^2 + 3x + 7} dx = \frac{5}{2} \ln |x^2 + 3x + 7| - \frac{37}{\sqrt{19}} \operatorname{arctg} \left(\frac{2x + 3}{\sqrt{19}} \right) + K$$