## CÁLCULO DIFERENCIAL E INTEGRAL

## Integral indefinida: Frações parciais

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1. Escreva as funções a seguir na forma de frações parciais

a) 
$$f(x) = \frac{2x}{(x+3)(3x+1)}$$
 b)  $f(x) = \frac{1}{x^3 + 2x^2 + x}$  c)  $f(x) = \frac{x}{x^2 + x - 2}$ 

$$b) \ f(x) = \frac{1}{x^3 + 2x^2 + x}$$

c) 
$$f(x) = \frac{x}{x^2 + x - 2}$$

$$d) \ f(x) = \frac{x^2}{x^2 + x + 2}$$

e) 
$$f(x) = \frac{x^3 + x^2}{x^2 + x - 2}$$

d) 
$$f(x) = \frac{x^2}{x^2 + x + 2}$$
 e)  $f(x) = \frac{x^3 + x^2}{x^2 + x - 2}$  f)  $f(x) = \frac{5x + 3}{x^2 - 8x + 12}$ 

- 2. Resolva as integrais das funções propostas no exercício 1.
- 3. Resolva as integrais

a) 
$$\int \frac{5x+1}{(2x+1)(x-1)} dx$$

$$b) \int \frac{dx}{(x+a)(x+b)}$$

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$$\int \frac{5x+1}{(2x+1)(x-1)} dx$$
 b)  $\int \frac{dx}{(x+a)(x+b)}$  c)  $\int \frac{dx}{(x+1)(x+2)(x+3)}$ 

$$d) \int \frac{x}{x^2 + 6x + 6} \ dx$$

$$e) \int \frac{dx}{x^4}$$

d) 
$$\int \frac{x}{x^2 + 6x + 6} dx$$
 e)  $\int \frac{dx}{x^4}$  f)  $\int \frac{2x^2 + 5}{(x^2 + 1)(x^2 + 4)} dx$ 

$$g) \int \frac{2x+5}{x^2-4} \ dx$$

$$h) \int \frac{x^3}{x^2 - 4} \ dx$$

g) 
$$\int \frac{2x+5}{x^2-4} dx$$
 h)  $\int \frac{x^3}{x^2-4} dx$  i)  $\int \frac{x^3-1}{4x^3-x} dx$ 

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

$$j) \int \frac{5x^2 - 2x + 4}{(x - 2)^3} dx$$
  $k) \int \frac{x^2 + 1}{(x - 1)(x + 2)^3} dx$   $l) \int \frac{dx}{x(x + 1)^2}$ 

$$l) \int \frac{dx}{x\left(x+1\right)^2}$$

$$m) \int \frac{x^3 + x + 1}{x(x^2 + 1)} \, dx$$

$$n) \int \frac{x^2 - 8x + 7}{(x^2 - 3x - 10)^2} dx$$

m) 
$$\int \frac{x^3 + x + 1}{x(x^2 + 1)} dx$$
 n)  $\int \frac{x^2 - 8x + 7}{(x^2 - 3x - 10)^2} dx$  o)  $\int \frac{2x^3 - 6x^2 - 2}{x(x - 2)(x^2 + 1)} dx$