



### Guía de ejercicios Fracciones parciales

1. Descomponga en fracciones parciales:

$$\text{a) } \frac{x+2}{x^3} \quad \text{R: } \frac{2}{x^3} + \frac{1}{x^2}$$

$$\text{b) } \frac{x^2+3x-4}{x^2-2x-8} \quad \text{R: } 1 + \frac{1}{x+2} + \frac{4}{x-4}$$

$$\text{c) } \frac{x^4-2x^3+3x^2-x+3}{x^3-2x^2+3x} \quad \text{R: } x + \frac{1}{x} - \frac{x-1}{x^2-2x+3}$$

$$\text{d) } \frac{1}{x^3+x} \quad \text{R: } \frac{1}{x} - \frac{x}{x^2+1}$$

$$\text{e) } \frac{x-5}{(x^2-25)(x-2)(x+5)} \quad \text{R: } -\frac{1}{7(x+5)^2} - \frac{1}{49(x+5)} + \frac{1}{49(x-2)}$$

$$\text{f) } \frac{x^3}{x^3-64} \quad \text{R: } 1 + \frac{4}{3(x-4)} - \frac{4}{3} \frac{x+8}{x^2+4x+16}$$

$$\text{g) } \frac{1}{(x+2)^3} \quad \text{R: } \frac{1}{(x+2)^3}$$

$$\text{h) } \frac{3x^2-16}{x^2-4x} \quad \text{R: } 3 + \frac{4}{x} + \frac{8}{x-4}$$

$$\text{i) } \frac{x^5-1}{x^4-1} \quad \text{R: } x + \frac{1}{2(x+1)} - \frac{1}{2} \frac{x-1}{x^2+1}$$

$$\text{j) } \frac{1-x^2}{(x+1)(x-3)^2(2x+1)} \quad \text{R: } \frac{6}{49(2x+1)} - \frac{2}{7(x-3)^2} - \frac{3}{49(x-3)}$$

$$\text{j) } \frac{1-x^2}{(x+1)(x-3)^2(2x+1)} \quad \text{R: } \frac{6}{49(2x+1)} - \frac{2}{7(x-3)^2} - \frac{3}{49(x-3)}$$

$$\text{k) } \frac{x^2-1}{(x^2+1)^2} \quad \text{R: } x^2-3 - \frac{2}{(1+x^2)^2} + \frac{5}{1+x^2}$$