

$$-x_1 \cdot x_2 \cdot x_3 = 18$$

$$x^3 - 2x^2 - 9x + 18 = 0$$

$$x=3 \Rightarrow 27 - 18 - 27 + 18 = 0 \quad \checkmark \Rightarrow x_1 = 3$$

$$\int \frac{2x-3}{x^3-2x^2-9x+18} dx$$

$$x^3 - 2x^2 - 9x + 18 = (x-3) \cdot (\quad)$$

$$\begin{array}{r} x^3 - 2x^2 - 9x + 18 \\ x^3 - 3x^2 \\ \hline 0 + x^2 - 9x + 18 \\ x^2 - 3x \\ \hline 0 - 6x + 18 \\ -6x + 18 \\ \hline 0 \quad 0 \end{array}$$

$$\begin{array}{r} x-3 \\ x^2+x-6 \end{array}$$

$$\frac{\text{dividendo}}{\text{divisor}} = \text{coc.} + \frac{\text{resto}}{\text{divisor}}$$

$$\frac{x^3 - 2x^2 - 9x + 18}{x-3} = x^2 + x - 6$$

$$x^3 - 2x^2 - 9x + 18 = (x-3)(x^2 + x - 6)$$

$$x = \frac{-1 \pm \sqrt{1+24}}{2} = \begin{cases} x_2 = 2 \\ x_3 = -3 \end{cases}$$

Comprobación: $-x_1 \cdot x_2 \cdot x_3 = 18$; $-3 \cdot 2 \cdot (-3) = 18 \quad \checkmark$

$$\frac{2x-3}{x^3-2x^2-9x+18} = \frac{A}{x-3} + \frac{B}{x-2} + \frac{C}{x+3}$$

$$\frac{2x-3}{x^3-2x^2-9x+18} = \frac{A(x-2)(x+3) + B(x-3)(x+3) + C(x-3)(x-2)}{(x-3)(x-2)(x+3)}$$

$$2x-3 = A(x-2)(x+3) + B(x-3)(x+3) + C(x-3)(x-2)$$

$$x=3 \Rightarrow 3 = A \cdot 6 \Rightarrow A = 1/2$$

$$x=2 \Rightarrow 1 = B(-1) \cdot 5 \Rightarrow B = -1/5$$

$$x=-3 \Rightarrow -9 = C(-6)(-5) \Rightarrow -9 = 30 \cdot C \Rightarrow C = -\frac{3}{10}$$

$$\int \frac{2x-3}{x^3-2x^2-9x+18} dx =$$

$$= \int \left(\frac{1/2}{x-3} + \frac{-1/5}{x-2} + \frac{-3/10}{x+3} \right) dx =$$

$$= \frac{1}{2} \ln|x-3| - \frac{1}{5} \ln|x-2| - \frac{3}{10} \ln|x+3| + C$$

$$\int \frac{f'(x)}{f(x)} dx = \ln|f(x)| + C$$