

27 Opera y simplifica:

$$\text{a) } \left(1 - \frac{x+1}{x+2} \cdot \frac{x+3}{x+2}\right) : \frac{1}{x+2}$$

$$\text{b) } \left(\frac{x+1}{x} - \frac{x}{x+2}\right) : \left(1 + \frac{x}{x+2}\right)$$

$$\begin{aligned} \text{a) } \left(1 - \frac{x+1}{x+2} \cdot \frac{x+3}{x+2}\right) : \frac{1}{x+2} &= \left(1 - \frac{x^2 + 4x + 3}{(x+2)^2}\right) : \frac{1}{x+2} = \\ &= \frac{x^2 + 4x + 4 - x^2 - 4x - 3}{(x+2)^2} : \frac{1}{x+2} = \frac{1}{(x+2)^2} : \frac{1}{x+2} = \frac{x+2}{(x+2)^2} = \frac{1}{x+2} \end{aligned}$$

$$\begin{aligned} \text{b) } \left(\frac{x+1}{x} - \frac{x}{x+2}\right) : \left(1 + \frac{x}{x+2}\right) &= \frac{(x+1)(x+2) - x^2}{x(x+2)} : \frac{x+2+x}{x+2} = \\ &= \frac{x^2 + 3x + 2 - x^2}{x(x+2)} : \frac{2x+2}{x+2} = \\ &= \frac{3x+2}{x(x+2)} : \frac{2x+2}{x+2} = \frac{(3x+2)(x+2)}{x(x+2)(2x+2)} = \\ &= \frac{3x+2}{x(2x+2)} = \frac{3x+2}{2x^2+2x} \end{aligned}$$