

Esercizio 27) e)

FRAZIONE ALGEBRICA

$$\frac{x}{x^2-1} - \frac{2x}{x^2+2x-3} + \frac{x}{x^2-x-2}$$

$$x^2-1 = (x+1)(x-1); \quad x^2+2x-3 = x^2+3x-x-3 =$$

$$= x(x+3) - (x+3) = (x+3)(x-1); \quad x^2-x-2 = x^2-2x+x-2$$

$$= x(x-2) + (x-2) = (x-2)(x+1)$$

$$\frac{x}{(x+1)(x-1)} - \frac{2x}{(x+3)(x-1)} + \frac{x}{(x-2)(x+1)} =$$

$$\text{mcm} = (x+1)(x-1)(x+3)(x-2)$$

$$\frac{x(x+3)(x-2) - 2x(x+1)(x-2) + x(x-1)(x+3)}{(x+1)(x-1)(x+3)(x-2)} =$$

$$= \frac{x[(x+3)(x-2) - 2(x+1)(x-2) + (x-1)(x+3)]}{(x+1)(x-1)(x+3)(x-2)} =$$

$$= \frac{x[x^2 + \widehat{x} - \check{6} - 2x^2 + \widehat{2x} + \check{4} + x^2 + \widehat{2x} - \check{3}]}{(x+1)(x-1)(x+3)(x-2)} =$$

$$= \frac{x(6x-5)}{(x^2-1)(x^2+x-6)}$$