

Simulazione Matematica - 6: 04 PM

Es. 1

Lo so

Es. 2

$$a) \frac{3x-2}{4} + \frac{x+1}{2} = \frac{5x-6}{8}$$

$$\frac{3x-2}{4} + \frac{x+1}{2} - \frac{5x-6}{8} = 0 \quad \text{mcm}$$

$$\frac{2(3x-2) + 4(x+1) - 5x-6}{8} = 0$$

$$6x - \cancel{4} + 4x + \cancel{4} - 5x - 6 = 0$$

$$5x = +6 \quad x = 6/5$$

$$S = \{6/5\}$$

$$b) \frac{x-1}{x+3} > \frac{2x-5}{x-2} \quad \begin{array}{l} \text{CE} \\ x \neq -3 \wedge \\ x \neq 2 \end{array}$$

$$\frac{x-1}{x+3} - \frac{2x-5}{x-2} > 0$$

$$\frac{(x-1)(x-2) - (2x-5)(x+3)}{(x+3)(x-2)} > 0$$

$$x^2 - 2x - x + 2 - 2x^2 - 6x + 5x + 15 > 0$$

$$-x^2 - 3x + 2 - 6x + 5x + 15 > 0$$

$$-x^2 - 4x + 2 + 15 > 0$$

$$-x^2 - 4x + 17 > 0$$

Studio del Segno:

$$-x^2 - 4x + 17 > 0 \Rightarrow -x^2 - 4x > -17$$

$$(x-2) > 0$$

$$(x+3) > 0$$

$$c) (x+3)^2 = (x-1)^2 + 16$$

$$x^2 + 6x + 9 = x^2 - 2x - 1 + 16$$

$$6x + 2x = -16 - 1 + 9$$

$$8x = -17 + 9$$

$$\frac{8x}{8} = -\frac{8}{8} \quad S = \{-1\}$$

$$x = -1$$

$$d) |3x-4| < 5$$

$$3x < 5 + 4$$

$$3x < 9$$

$$x < 3$$

$$S = \{ \forall x \in \mathbb{R} \mid x < 3 \}$$

Es. 3

$$a) x^2 - 11x + 28 \Rightarrow (x-4)(x-7)$$

$$b) 2x^3 - 8x \Rightarrow 2x(x^2 - 4) \Rightarrow 2x(x-2)(x+2)$$

$$c) x^4 - 16 \Rightarrow x^4 - 2^4 \Rightarrow (x^2 - 2^2)(x^2 + 2^2) \Rightarrow (x-2)(x+2)(x^2 + 2^2)$$

$$d) ab^2 + a^2b + b \Rightarrow a(b^2 + ab) + b$$

$$a(b(b+a)) + b \Rightarrow ab(b+a) + b$$

Es. 4 - funzioni

$$a) f(x) = \frac{x^2 - 9}{x - 2} \Rightarrow \frac{x(x-3)}{x-2} \Rightarrow \text{zeri: } 0; +3$$

$$\text{Dominio: } D = \{ \forall x \in \mathbb{R} \mid x \neq 2 \}$$

$$\text{zeri: } \text{zeri} = \{0; +3\}$$

$$\text{Codominio: } \mathbb{R}$$

$$b) g(x) = \frac{2x+3}{x^2-x-6} \Rightarrow \frac{2x+3}{(x-3)(x+2)} \Rightarrow 2x+3 = 0 \Rightarrow x = -3/2$$

$$\text{Dominio: } D = \{ \forall x \in \mathbb{R} \mid x \neq 3 \wedge x \neq -2 \}$$

$$\text{zeri: } -3/2$$

$$\text{Codominio: } \mathbb{R}$$

Es. 5

$$a) \begin{cases} x+y = 30 \\ x-y = 8 \end{cases} \quad \begin{array}{l} \text{Non abbiamo fatto} \\ \text{il sistema di eq.} \end{array}$$