

Frazioni algebriche

$$a^3 x^{-2} = \frac{a^3}{x^2}$$

$$\frac{\cancel{5}}{\cancel{0}} \quad \frac{3}{4} \quad \frac{0}{2}$$

$$\frac{2x-5}{a+3}$$

$$\frac{7a^2}{4abc}$$

Condizioni di esistenza

1) $\frac{2}{ab}$ C.E.: $ab \neq 0 \begin{cases} \nearrow a \neq 0 \\ \rightarrow b \neq 0 \end{cases}$

2) $\frac{x+2}{x-1}$ C.E.: $x-1 \neq 0; x \neq 1$

3) $\frac{x+3}{(x-2)(x+2)}$ C.E.: $(x-2)(x+2) \neq 0 \begin{cases} \nearrow x \neq 2 \\ \rightarrow x \neq -2 \end{cases}$

4) $\frac{3}{a-b}$ C.E.: $a-b \neq 0; a \neq b$

5) $\frac{2x+1}{2x-4}$ C.E.: $2x-4 \neq 0; 2x \neq 4$

Semplificazione

$$1) \frac{a^3 b^4}{a^2 b^3} = \frac{a^3}{b^3}$$

$$\frac{45}{27} = \frac{3^2 \cdot 5}{3^3}$$

$$2) \frac{9a^2(a+b)^2}{3a^3(a+b)} = \frac{(a+b)^2}{3a}$$

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

Somma di fr. alg.

$$1) \frac{2}{a} + \frac{3}{a^2} - \frac{4}{a^3} =$$
$$= \frac{2a^2 + 3a - 4}{a^3}$$

$$\frac{1}{2} + \frac{4}{5} + \frac{1}{3} =$$
$$= \frac{15 + 24 + 10}{30}$$

$$2) \frac{x^2-2}{x^2-5x+6} - \frac{x-3}{x-2} + \frac{4}{x-3} =$$

$$= \frac{x^2-2}{(x-3)(x-2)} - \frac{x-3}{x-2} + \frac{4}{x-3} =$$

$$= \frac{x^2-2 - (x-3)^2 + 4(x-2)}{(x-3)(x-2)} =$$

$$= \frac{\cancel{x^2}-2 - \cancel{x^2} + 6x - 9 + 4x - 8}{(x-3)(x-2)} = \frac{10x-19}{(x-3)(x-2)}$$

$$3) \frac{-24}{y^3-9y^2+20y-12} + \frac{y}{1-y^2} + \frac{y}{y^2-7y+6} =$$

$$= \frac{-24}{(y-1)(y-2)(y-6)} + \frac{y}{(1+y)(1+y)} + \frac{y}{(y-1)(y-6)} =$$

$$= \frac{-24(y+1) - y(y-2)(y-6) + y(y-2)(y+1)}{(y-1)(y-2)(y-6)(y+1)} =$$

$$= \frac{-24y-24 - y(y^2-8y+12) + y(y^2-y-2)}{(y-1)(y-2)(y-6)(y+1)} =$$

$$= \frac{-24y - 24 - \cancel{y^3} + 8y^2 - 12y + \cancel{y^3} - y^2 - 2y}{(y-1)(y-2)(y-6)(y+1)} =$$

$$= \frac{7y^2 - 38y - 24}{(y-1)(y-2)(y-6)(y+1)} =$$

$$= \frac{(7y+4)(\cancel{y-6})}{(y-1)(y-2)(\cancel{y-6})(y+1)} =$$

$$= \frac{7y+4}{(y-1)(y-2)(y+1)}$$