

CORREZIONE esercizi svolto a casa:

ES. 396

$$\left( \frac{\cancel{a+b} - \cancel{a+b}}{a-b} \right)^{-2} \cdot \left( \frac{2ab}{(a-b)(a+b)} \right)^{-1}$$

$$= \left( \frac{2b}{a-b} \right)^{-2} \cdot \frac{2ab}{(a-b)(a+b)}$$

$$= \frac{(a-b)^2}{4b^2} \cdot \frac{2ab}{(a-b)(a+b)}$$

$c \neq 0$   
 $a \neq b$   
 $a \neq -b$   
 $b \neq 0$

# ESERCITAZIONE N°1

Risolvi la seguente equazione fratta

$$\frac{1}{4-4x^3} - \frac{x}{2x^3-2} = -\frac{1}{2x^2-2}$$

$$\frac{1}{4(1-x)(1+x^2+x)} - \frac{x}{2(x-1)(x^2+1+x)} =$$

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

$$-\frac{1}{4(x-1)(x^2+x+1)} - \frac{x}{2(x-1)(x^2+x+1)} +$$

$$+\frac{1}{2(x-1)(x+1)} = 0$$

$$-(x+1) - 2x(x+1) + 2(x^2+x+1) = 0$$

$$4(x-1)(x+1)(x^2+x+1) = 0$$

Scomposizione

$$\begin{aligned} 4 - 4x^3 &= \\ &= 4(1-x^3) = \\ &= 4(1-x)(1+x^2+x) \end{aligned}$$

$$\begin{aligned} 2x^3 - 2 &= \\ &= 2(x^3-1) = \\ &= 2(x-1)(x^2+1+x) \end{aligned}$$

$$\begin{aligned} 2x^2 - 2 &= \\ &= 2(x^2-1) = \\ &= 2(x-1)(x+1) \end{aligned}$$

C.E

$$x \neq 1$$

$$x \neq -1$$

IMPORTANTE

$$x^2 + x + 1 \neq 0 \quad \forall x \in \mathbb{R}$$

$$-x - 1 - \cancel{2x^2} - \cancel{2x} + \cancel{2x^2} + \cancel{2x} + 2 = 0$$

$$-x + 1 = 0$$

$$-x = -1 \quad \text{Fact.}$$

$$x = 1$$

NOT ACC.  $\rightarrow$  IMPOSSIBLE

# ESERCITAZIONE N°2

Risolvi la seguente equazione fratta

C.E

$x \neq -5$

$x \neq 2$

$x \neq 1$

$x \neq -2$

$$\frac{x^2 + x - 6}{x^2 + 4x - 5} : \frac{x^2 - 4}{x + 5} + \frac{1}{x - 1} = \frac{1}{x + 2}$$

$$\frac{x^2 + x - 6}{x^2 + 4x - 5} \cdot \frac{x + 5}{x^2 - 4} + \frac{1}{x - 1} = \frac{1}{x + 2} = 0$$

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

FAIOLA

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

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

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

$$\cancel{x + 3} + \cancel{x + 2} - \cancel{x} + \underline{1} = 0$$

$$x + 6 = 0$$

$$x = -6$$

ACC

## ESERCITAZIONE PER CASA

$$\left(\frac{x^2 - 4x + 4}{3 - x}\right)^2 \cdot \left(\frac{x - 3}{x^2 - 4}\right)^4 \quad \left[\frac{(x - 3)^2}{(x + 2)^4}\right]$$

$$\left(\frac{a + 2}{a + 3} - \frac{1}{2 - a} - \frac{3a - 1}{a^2 + a - 6}\right)^2 \cdot \frac{a^2 - 9}{3a^2} \quad \left[\frac{a - 3}{3(a + 3)}\right]$$

$$\left(\frac{4x - 8}{x^2 - 4x + 3}\right)^{-2} \cdot \left(\frac{x^3 - 3x^2 + 3x - 1}{8}\right)^{-1} \cdot \left(\frac{x^2 - 6x + 9}{2x^2 - 6x + 4}\right)^{-2} \quad \left[\frac{2x - 2}{(x - 3)^2}\right]$$

$$\frac{8x^2 + 5x - 1}{3x^2 + 5x - 2} - \frac{x - 1}{x + 2} = 2 + \frac{x - 1}{1 - 3x} \quad \left[\text{ind., } x \neq -2 \wedge x \neq \frac{1}{3}\right]$$

$$\mathbf{367} \quad \left(\frac{2a}{a + 1}\right)^2 \cdot \left(\frac{a + 1}{a}\right)^3 - \frac{4}{a} \quad [4]$$

$$\mathbf{371} \quad \left(\frac{a + b}{ab^2} - \frac{a - b}{a^2b}\right)^2 \cdot \frac{a^5b^6}{a^5b^2 - ab^6} - \frac{2ab}{a^2 - b^2} \quad \left[\frac{a - b}{a + b}\right]$$

$$\mathbf{368} \quad \left[\frac{a^3}{(a - 1)^2}\right]^3 \cdot \left(\frac{a - 1}{a^2}\right)^5 - \frac{1}{a} - \frac{1}{a - 1} \quad \left[-\frac{2}{a}\right]$$

$$\mathbf{372} \quad \left[\left(\frac{2a^2}{a - 2}\right)^3 + \left(\frac{a^3}{a - 2}\right)^2\right] \cdot \left(\frac{a - 2}{a^2}\right)^3 \quad [a + 6]$$

$$\mathbf{369} \quad \left[\left(\frac{2a^2}{a - 2}\right)^3 + \left(\frac{a^3}{a - 2}\right)^2\right] \cdot \left(\frac{a - 2}{a^2}\right)^3 \quad [a + 6]$$

$$\mathbf{373} \quad \left[\left(\frac{x}{x - y} - \frac{y}{x + y}\right)^2 \cdot \frac{x^2 - y^2}{x^4 + 2x^2y^2 + y^4}\right]^{-1} \quad [x^2 - y^2]$$

$$\mathbf{370} \quad \left[\left(\frac{1}{x} + \frac{1}{y}\right)^2 \cdot \left(\frac{xy}{x + y}\right)^3 - \frac{y}{x + y}\right] \cdot \frac{1}{xy - y} \quad \left[\frac{1}{x + y}\right]$$

$$\mathbf{374} \quad \left(\frac{1}{x^2 - 2x} - \frac{1}{x^2 + 2x} - \frac{2}{x^2 - 4}\right)^{-3} \cdot \left(\frac{1}{2x^2 + 4x}\right)^2 \cdot \frac{(-2)^5}{x} \quad [x + 2]$$

$$\frac{b^2 - a^2}{a^2 + 2ab + b^2}$$