

ESERCIZI IN PIÙ

ESPRESSIONI CON ADDIZIONI E MOLTIPLICAZIONI DI FRAZIONI ALGEBRICHE

Semplifica le seguenti espressioni algebriche.

$$1 \quad \left(\frac{x}{2x^2 - 11x + 5} - \frac{1}{x^2 - 5x} \right) \cdot \frac{4x^2 - 2x}{3x - 3}; \quad \left(b - \frac{1}{b^2} \right) \cdot \frac{b+1}{b^2 + b + 1} + \frac{1}{b^2} \cdot \left[\frac{2}{3} \cdot \frac{x-1}{x-5}; 1 \right]$$

$$2 \quad \left[\frac{a}{3a^4 - a^2 - 2} - \frac{1}{a(3a^2 + 3a + 2) + 2} \right] \cdot \left(a^5 + \frac{4}{3}a^3 + \frac{4}{9}a \right) \quad \left[\frac{1}{9} \cdot \frac{(2 + 3a^2)a}{a^2 - 1} \right]$$

$$3 \quad \left(\frac{2a^2 - 5ab - 3b^2}{2ab^2 + b^3} + \frac{3a^2 + 5ab - 2b^2}{a^3 + 2a^2b} \right) \cdot \frac{(ab)^3}{a^2 - b^2} - \frac{ab^3 - 2a^2b^2}{a + b} \quad \left[\frac{a^3b}{a + b} \right]$$

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

$$5 \quad \frac{2x-1}{6x^2-7x+2} - \frac{x^2+3x-4}{2x+8} \cdot \frac{3}{3x-2} \quad \left[-\frac{1}{2} \cdot \frac{3x-5}{3x-2} \right]$$

$$6 \quad \left(\frac{2}{a^2 - b^2 + a + b} - \frac{1}{a^2 - b^2} + \frac{1}{a^2 - 2ab + b^2 + a - b} \right) \cdot \left(\frac{2-ab}{2a^2 - 3a + 1} + \frac{b+1}{2a-1} \right) - \frac{1}{a^3 - a^2 - ab^2 + b^2} \quad [0]$$

$$7 \quad \left\{ \left[\left(\frac{a}{2a-1} - \frac{a-1}{2a+1} \right) \cdot \frac{3a}{8a^2 + 2a - 1} - \frac{1}{4a^2 + 4a + 1} \right] \cdot \frac{4a^2 - 1}{a^2 - 1} + 1 \right\} \cdot \frac{a-1}{2a-1} + \frac{a+1}{2a+1} \quad [1]$$

$$8 \quad \left[\left(\frac{a+5}{a^2 - 5a + 6} - \frac{a-3}{a^2 + 3a - 10} + \frac{a-2}{a^2 + 2a - 15} \right) \cdot \left(\frac{a}{a+10} - \frac{1}{a+2} + \frac{2a}{a^2 + 12a + 20} \right) + 1 \right] \cdot \left(3 - \frac{a}{a-2} \right) \quad [2]$$

$$9 \quad \left(\frac{a+1}{a^2 - 4a - 12} - \frac{2a+2}{3a^3 - 13a^2 - 32a + 12} \right) \cdot \left(\frac{2a}{a+1} + \frac{a+1}{a-1} - \frac{3-5a}{a^2-1} \right) - \frac{2a}{a^2 - 8a + 12} \quad \left[\frac{1}{a-2} \right]$$

$$10 \quad \frac{ab + 3a - 2b - 6}{a^2 - 2a + 1 + ab - b} \cdot \frac{ab - a + (b-1)^2}{b^2 + 2b - 3}; \quad \left[1 - \left(a - \frac{a^2 + a}{a^2 + a + 1} \right) \cdot \left(a + \frac{a+1}{a-1} \right) \right] \cdot \frac{a^3 - 1}{a^4 - a^3 + a^2 - a + 1} \cdot \left[\frac{a-2}{a-1}; -a-1 \right]$$