

SEMPLIFICAZIONE DI FRAZIONI ALGEBRICHE

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|----|---|--------------------------------------|----|--|---|
| 1 | $\frac{-6xy^2+3x^2y}{15x^2y^2}$ | $\left[\frac{x-2y}{5xy}\right]$ | 13 | $\frac{x^2+9+6x}{-2x^2+6x+36}$ | $\left[\frac{x+3}{2(6-x)}\right]$ |
| 2 | $\frac{4x^3-4x^2}{16x^3}$ | $\left[\frac{x-1}{4x}\right]$ | 14 | $\frac{8x^3+36x^2+54x+27}{24x^2-54}$ | $\left[\frac{(2x+3)^2}{6(2x-3)}\right]$ |
| 3 | $\frac{12xy-16y^2}{6x-8y}$ | $[2y]$ | 15 | $\frac{x^2-2xy-15y^2}{x^2-8xy+15y^2}$ | $\left[\frac{x+3y}{x-3y}\right]$ |
| 4 | $\frac{x^6+x^8}{x^6}$ | $[1+x^2]$ | 16 | $\frac{2a-4}{4a^3-32-24a^2+48a}$ | $\left[\frac{1}{2(a-2)^2}\right]$ |
| 5 | $\frac{5x+5y}{3x+3y+ax+ay}$ | $\left[\frac{5}{3+a}\right]$ | 17 | $\frac{z^3+3z^2-4z-12}{3z^2+15z+18}$ | $\left[\frac{z-2}{3}\right]$ |
| 6 | $\frac{2-2y-y^2+y^3}{1-y+3y^2-3y^3}$ | $\left[\frac{2-y^2}{1+3y^2}\right]$ | 18 | $\frac{8a^3-27b^3}{8a^3b+12a^2b^2+18ab^3}$ | $\left[\frac{2a-3b}{2ab}\right]$ |
| 7 | $\frac{3x^2-75}{6x^2-36x+30}$ | $\left[\frac{x+5}{4x}\right]$ | 19 | $\frac{a^2-15a+56}{2a^2-2a-112}$ | $\left[\frac{a-7}{2(a+7)}\right]$ |
| 8 | $\frac{a^2+2a+1}{4a^2+28a+24}$ | $\left[\frac{a+1}{4(a+6)}\right]$ | 20 | $\frac{4x^4+4x^3-80x^2}{8x^5+32x^4-40x^3}$ | $\left[\frac{x-4}{2x(x-1)}\right]$ |
| 9 | $\frac{a^6-a^3y^3}{a^4+a^3-ay^3-y^3}$ | $\left[\frac{a^3}{a+1}\right]$ | 21 | $\frac{5x^2-5xy-3x+3y}{5x^2+5xy-3x-3y}$ | $\left[\frac{x-y}{x+y}\right]$ |
| 10 | $\frac{ax^2-4a}{6x^2+24x+24}$ | $\left[\frac{a(x-2)}{6(x+2)}\right]$ | 22 | $\frac{6z^5-6z}{3z^4+12z^2+9}$ | $\left[\frac{2z(z^2-1)}{z^2+3}\right]$ |
| 11 | $\frac{x^2+3x+2}{x^2+6x+5}$ | $\left[\frac{x+2}{x+5}\right]$ | 23 | $\frac{x^2-x-20}{x^2+x-30}$ | $\left[\frac{x+4}{x+6}\right]$ |
| 12 | $\frac{x^2-9}{x^2-6x+9}$ | $\left[\frac{x+3}{x-3}\right]$ | 24 | $\frac{(a^2-b^2)^2}{a^2+b^2+2ab}$ | $[(a-b)^2]$ |
| 25 | $\frac{8z^3-t^3}{2at+bt-4az-2bz}$ | | | | $\left[-\frac{4z^2+t^2+2tz}{2a+b}\right]$ |
| 26 | $\frac{x^2+1+4y^2-2x+4xy-4y}{x^2+4y^2+4xy-1}$ | | | | $\left[\frac{x-1+2y}{x+2y+1}\right]$ |
| 27 | $\frac{x^4-y^4+x^2-y^2}{x^3+xy^2+xyx^2+y^3+y}$ | | | | $[x-y]$ |
| 28 | $\frac{y^3-3ay^2+3a^2y-a^3}{y^3-a^3}$ | | | | $\left[\frac{(y-a)^2}{y^2+ay+a^2}\right]$ |
| 29 | $\frac{(3-x)(1-2y)+3y^2-xy^2}{3-3y-x+xy}$ | | | | $[1-y]$ |
| 30 | $\frac{x^5+x^2y^3-x^4y-xy^4}{x^4-x^2y^2+x^3y-xy^3}$ | | | | $\left[\frac{x^2-xy+y^2}{x+y}\right]$ |

OPERAZIONI CON LE FRAZIONI ALGEBRICHE

- 1 $\frac{4b}{b-y} + \frac{5b}{b+y} - \frac{8by}{b^2-y^2}$ $\left[\frac{9b}{b+y} \right]$
- 2 $\frac{2y^2-xy}{2x-4y} + \frac{x^2-2xy+y}{6y-3x} + \frac{y}{2}$ $\left[-\frac{x}{3} \right]$
- 3 $\frac{3a-x}{3x-9a} + \frac{x-a}{5x+15a} + \frac{2}{15}$ $\left[\frac{-4a}{5(x+3a)} \right]$
- 4 $\frac{a-1}{a+1} - \frac{15a+11}{1-a^2} + \frac{3a}{a-1}$ $\left[\frac{4(a+3)}{a-1} \right]$
- 5 $\frac{a}{x+1} + \frac{a+b}{x^2-1} + \frac{b}{1-x}$ $\left[\frac{x(a-b)}{(x^2-1)} \right]$
- 6 $\frac{x}{x^2-8x+15} - \frac{4x}{x^2-2x-15} - \frac{3x}{x^2-9}$ $\left[\frac{6x}{9-x^2} \right]$
- 7 $\frac{x-2y}{x+y} - \frac{4x^2+y^2+4xy}{(x-2y)(x+y)} + \frac{3x-3y}{x-2y}$ $\left[\frac{-8xy}{(x-2y)(x+y)} \right]$
- 8 $\frac{6a}{a+b} - \frac{6a^2+5ab-6b^2}{b^2-a^2} + \frac{6b}{a-b}$ $\left[\frac{17ab}{(a^2-b^2)} \right]$
- 9 $\frac{y^2-1}{y-2} - \frac{y^2-4y+4}{y-1} - \frac{5y^2-17}{y^2-3y+2}$ $\left[\frac{13}{1-y} \right]$
- 10 $\frac{a^3-y^3}{a^3+3ay^2-3a^2y-y^3} + \frac{ay}{a^2-2ay+y^2} + \frac{a+y}{y-a}$ $\left[\frac{2y(a+y)}{(a-y)^2} \right]$
- 11 $\frac{4a(y-a)}{y^3+8a^3} + \frac{1}{y+2a} - \frac{y-a}{y^2-2ay+4a^2}$ $\left[\frac{a}{y^2-2ay+4a^2} \right]$
- 12 $\frac{4y}{y^3-27-9y^2+27y} + \frac{2y}{y^2-9} - \frac{2y+1}{y^2-6y+9}$ $\left[\frac{-3(3y^2-16y-3)}{(y-3)^3(y+3)} \right]$
- 13 $\frac{2}{y^2-9y+20} - \frac{2}{25-y^2} - \frac{4}{y^2+y-20}$ $\left[\frac{22}{(y^2-25)(y-4)} \right]$
- 14 $\frac{2(a+b)}{bc-c^2-ab+ac} + \frac{b+c}{ac-a^2-bc+ab} + \frac{2(a+c)}{ab-ac-b^2+bc}$ $\left[\frac{b+c}{(a-b)(a-c)} \right]$
- 15 $\left(\frac{3x-2}{x^2-4x+3} - \frac{1-x}{x^2+x-2} \right) - \left[\frac{5x-4}{-x^2+4x-3} + \frac{8x^2+7x-3}{(x^2-4x+3)(x+2)} \right]$ $\left[\frac{1}{x-1} \right]$
- 16 $\frac{9}{3x-12} \cdot \frac{x^2-16}{3x^2+48+24x}$ $\left[\frac{1}{x+4} \right]$
- 17 $\frac{x^2-x+xy-y}{2x^2-2xy-2x+2y} \cdot \frac{x^2-2xy+y^2}{3x-3y}$ $\left[\frac{x+y}{6} \right]$
- 18 $\frac{3x^6}{a^2-b^2} \cdot \frac{2a^2-4ab+2b^2}{12x^4} \cdot \frac{3a+3b}{6a-6b}$ $\left[\frac{x^2}{4} \right]$

- 19 $\frac{3x^2-48}{x^3-x^2-9x+9} \cdot \frac{x^2-9}{3x-12} \cdot \frac{x^2+1-2x}{5x+20}$ $\left[\frac{x-1}{5} \right]$
- 20 $\frac{x^3+1+3x^2+3x}{12ab-6a} \cdot \frac{4b^2+1-4b}{2x^2-2} \cdot \frac{12ax-12a}{x+1}$ $[(2b-1)(x+1)]$
- 21 $\frac{z^2-4z+3}{y^2+3y+2} \cdot \frac{y^3+6y^2+12y+8}{z^3-27} \cdot \frac{3z^2+9z+27}{zy+2z-y-2}$ $\left[\frac{3(y+2)}{y+1} \right]$
- 22 $\frac{a^2-a-2}{a^2-1} \cdot \frac{6-3a}{12}$ $\left[\frac{4}{1-a} \right]$
- 23 $\frac{2bx-b+2ax-a}{2x+1} \cdot \frac{12x-6}{6x+3}$ $\left[\frac{b+a}{2} \right]$
- 24 $\frac{a^3b^3+3a^3-3b^3-9}{4a^5-2a^3} \cdot \frac{2a^2b^3+6a^2-b^3-3}{4a^4+1-4a^2}$ $\left[\frac{a^3-3}{2a^3} \right]$
- 25 $\frac{x^2y^2+x^2z^3+a^3y^2+a^3z^3}{3x^3+3a^3x} \cdot \frac{2y^2+2z^3}{9y+9}$ $\left[\frac{3(y+1)}{2x} \right]$
- 26 $\frac{a^5-6a^4b+12a^3b^2-8a^2b^3}{a^2-3ab+2b^2} \cdot \frac{a^2-ab-2b^2}{3a^2-3b^2}$ $[3a^2(a-2b)]$
- 27 $\left(\frac{5x+10}{x-2} \right)^3 \cdot \left(\frac{15x+30}{3x-6} \right)^4$ $\left[\frac{5^7(x+2)^7}{(x-2)^7} \right]$
- 28 $\left(\frac{x-3y}{x+y} \right)^3 \cdot \left(\frac{x^2-9y^2}{x^2+4xy+3y^2} \right)^2$ $\left[\frac{(x-3y)^5}{(x+y)^5} \right]$
- 29 $\left(\frac{x^2-1}{x+1} \right)^{-2} \cdot \frac{x^2-1}{x^2+1} \cdot \left[\frac{(x-1)^2}{x^4-1} \right]^{-1}$ $\left[\left(\frac{x+1}{x-1} \right)^2 \right]$
- 30 $\left(\frac{a+b}{a-2b} - 1 \right)^2 \cdot \left(a - \frac{4b^2}{a} \right)^2 \cdot \left(\frac{a-2b}{a+2b} + 1 \right)^2$ $[36b^2]$
- 31 $\left(\frac{a}{a-b} - \frac{b}{a+b} + \frac{a^2+b^2}{a^2-b^2} \right) \cdot \left(\frac{a^2-b^2}{a^2+b^2} - 1 \right)$ $\left[\frac{-4b^2}{a^2-b^2} \right]$
- 32 $\left(\frac{2x^3}{x^3+8} - \frac{4}{x+2} + \frac{4}{x} - 2 \right) \cdot \left[\frac{8a^2}{3a(x+2)^3} \cdot \frac{(x+2)^2}{x^2-2x+4} \right]$ $\left[\frac{3(x-2)^2}{ax} \right]$
- 33 $\left(\frac{x+2y}{x-2y} + \frac{x-2y}{x+2y} - \frac{2x^2+1+4y^2}{x^2-4y^2} \right) \cdot \frac{4y^2+1+4y}{3x^2-12y^2}$ $\left[\frac{3(2y-1)}{2y+1} \right]$
- 34 $\left(\frac{1-3ab}{3a^2+ab} + \frac{b}{a} \right) \cdot \left(\frac{b}{3a-b} - \frac{1-9a^2}{-9a^2+b^2} + \frac{3a}{3a+b} \right)$ $\left[\frac{3a-b}{a} \right]$
- 35 $\frac{1}{a^2+2ab+b^2} \cdot \left[\left(\frac{a^2-ab+b^2}{y^3-27} \cdot \frac{a^3+b^3}{y^2+9+3y} \right) \cdot \frac{1}{y-3} \right]$ $\left[\frac{1}{a+b} \right]$
- 36 $\left(1 - \frac{a^2}{a^2+b^2} \right)^3 \cdot \left[\left(\frac{2a-b}{a+b} - \frac{a-b}{a} \right) \cdot \frac{a^2b^2-ab^3+b^4}{a^2+2ab+b^2} \right]^3$ $\left[-\frac{1}{a^3(a-b)^3} \right]$