ESPRESSIONI - CALCOLO LETTERALE

Svolgi le seguenti espressioni e successivamente confronta il risultato da te ottenuto con le soluzioni.

1) $5a^4b^4 : (-ab)^3 + \left[2a + (4a)\cdot ab - (a + 3a) - (2a)^2 b\right] \cdot (2b + b) =$

2) $2x \cdot (-4y)^2 + 6xy \cdot (-y)^3 : 2y^2 - (-7xy^2) =$

3) $-3ab + bc + 9ac - 8bc - 8ac + 8ab - ac - 5ab =$

4) $\left(\frac{5}{3}xy^2\right) \cdot \left(\frac{3}{8}xy\right) - \left(3x^2y\right) \cdot \left(\frac{1}{2}y\right)^2 + x^2 \cdot \left(\frac{1}{2}y\right)^3 =$

5) $\frac{3}{2}xy \cdot \left(\frac{1}{2}xy\right) + \frac{3}{2}xy \cdot (2x) - x \cdot \left(\frac{1}{2}xy\right) - x \cdot (2x) =$

6) $\frac{1}{3}b \cdot \left(-\frac{11}{4}a^2 + \frac{1}{2}a^2\right) + \left(\frac{3}{2}a^2b^2 + \frac{1}{4}a^2b^2\right) : \left(\frac{7}{2}b\right) - \frac{5}{4}a^2b =$

7) $(11x - 22x^2 + 33x^3) + (x^4 - 2x^2 + x - 1) + (44x^4 - 33x^3 + 24x^2 + 11x) =$

8) $\left(\frac{3}{4}a^2b - \frac{2}{3}ab^2\right) - \left(-\frac{5}{2}a^2b + \frac{2}{5}ab\right) - \left(\frac{5}{3}a^2b + \frac{4}{7}ab^2 + ab\right) =$

SOLUZIONI

1) $5a^4b^4 : (-ab)^3 + \left[2a + (4a)\cdot ab - (a+3a) - (2a)^2 b\right]\cdot(2b+b) =$

$= 5a^4b^4 : (-a^3b^3) + \left[2a + 4a^2b + (-a-3a) - (4a^2)b\right]\cdot(3b) =$

$= -5ab + \left[2a + 4a^2b - 4a + (-4a^2)b\right]\cdot(3b) =$

$= -5ab + \left[-2a\right]\cdot(3b) =$

$= -5ab + \left[-6ab\right] = \boxed{-11ab}$

2) $2x\cdot(-4y)^2 + 6xy\cdot(-y)^3 : 2y^2 - (-7xy^2) =$

$= 2x\cdot(+16y^2) + 6xy\cdot(-y^3) : 2y^2 + 7xy^2 =$

$= +32xy^2 - 6xy^4 : 2y^2 + 7xy^2 =$

$= +32xy^2 - 3xy^2 + 7xy^2 = \boxed{+36xy^2}$

3) $-3ab + bc + 9ac - 8bc - 8ac + 8ab - ac - 5ab =$

$= (-3+8-5)ab + (1-8)bc + (+9-8-1)ac = \boxed{-7bc}$

4) $\left(\frac{5}{3}xy^2\right)\cdot\left(\frac{3}{8}xy\right)-\left(3x^2y\right)\cdot\left(\frac{1}{2}y\right)^2+x^2\cdot\left(\frac{1}{2}y\right)^3=$

$=\left(\frac{5}{3}xy^2\right)\cdot\left(\frac{3}{8}xy\right)-\left(3x^2y\right)\cdot\left(\frac{1}{4}y^2\right)+x^2\cdot\left(\frac{1}{8}y^3\right)=$

$=\frac{5}{8}x^2y^3-\frac{3}{4}x^2y^3+\frac{1}{8}x^2y^3=$

$=\left(\frac{+5-6+1}{8}\right)x^2y^3=\boxed{0}$

5) $\frac{3}{2}xy\cdot\left(\frac{1}{2}xy\right)+\frac{3}{2}xy\cdot(2x)-x\cdot\left(\frac{1}{2}xy\right)-x\cdot(2x)=$

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

$=\left(\frac{+6-1}{2}\right)x^2y+\frac{3}{4}x^2y^2-2x^2=$

$=\boxed{\frac{5}{2}x^2y+\frac{3}{4}x^2y^2-2x^2}$

6) $\frac{1}{3}b\cdot\left(-\frac{11}{4}a^2+\frac{1}{2}a^2\right)+\left(\frac{3}{2}a^2b^2+\frac{1}{4}a^2b^2\right):\left(\frac{7}{2}b\right)-\frac{5}{4}a^2b=$

$=\frac{1}{3}b\cdot\left(\frac{-11+2}{4}a^2\right)+\left(\frac{6+1}{4}a^2b^2\right):\frac{7}{2}b-\frac{5}{4}a^2b=$

$=\frac{1}{3}b\cdot\left(-\frac{9}{4}a^2\right)+\left(\frac{7}{4}a^2b^2\right):\frac{7}{2}b-\frac{5}{4}a^2b=$

$=-\frac{3}{4}a^2b+\frac{1}{2}a^2b-\frac{5}{4}a^2b=$

$=\frac{-3+2-5}{4}a^2b=-\frac{6}{4}a^2b=\boxed{-\frac{3}{2}a^2b}$

7) $(11x-22x^2+33x^3)+(x^4-2x^2+x-1)+(44x^4-33x^3+24x^2+11x)=$

$=11x-22x^2+33x^3+x^4-2x^2+x-1+44x^4-33x^3+24x^2+11x=$

$=\boxed{+23x+45x^4}$

8) $\left(\frac{3}{4}a^2b-\frac{2}{3}ab^2\right)-\left(-\frac{5}{2}a^2b+\frac{2}{5}ab\right)-\left(\frac{5}{3}a^2b+\frac{4}{7}ab^2+ab\right)=$

$=\frac{3}{4}a^2b-\frac{2}{3}ab^2+\frac{5}{2}a^2b-\frac{2}{5}ab-\frac{5}{3}a^2b-\frac{4}{7}ab^2-ab=$

$=\left(\frac{9+30-20}{12}\right)a^2b+\left(\frac{-14-12}{21}\right)ab^2+\left(\frac{-2-5}{5}\right)ab=$

$=+\frac{19}{12}a^2b-\frac{26}{21}ab^2-\frac{7}{5}ab$