Lezione 36

Espressioni con i polinomi

$$\left[x(x-2y)-2x(y-2z)+x^2\right](2y-1)-(y-1)(x-3y+2z)\cdot 2x=$$

$$=\left[x^2-2xy-2xy+4xz+x^2\right](2y-1)-(y-1)(2x^2-6xy+4xz)=$$

$$=\left[2x^2-4xy+4xz\right](2y-1)-(2x^2y-6xy^2+4xyz-2x^2+6xy-4xz)=$$

$$=(4x^2y-2x^2-8xy^2+4xy+8xyz-4xz)-2x^2y+6xy^2-4xyz+2x^2-6xy+4xz$$

$$=4x^2y\cancel{-2x^2}-8xy^2+4xy+8xyz\cancel{-4xz}-2x^2y+6xy^2-4xyz\cancel{+2x^2}-6xy\cancel{+4xz}$$

$$=(4-2)x^2y+(-8+6)xy^2+(4-6)xy+(8-4)xyz=$$

$$=\boxed{2x^2y-2xy^2-2xy+4xyz}$$

$$\left\{\left[(m+2)(m-1)+2\right](m^2+m-1)+m\right\}\cdot\left(-\frac{1}{2}m\right)^2-\left(-\frac{1}{2}m^3\right)^2=$$

$$=\left\{\left[m^2-m+2m-\cancel{2}+\cancel{2}\right](m^2+m-1)+m\right\}\cdot\left(\frac{1}{4}m^2\right)-\left(\frac{1}{4}m^6\right)=$$

$$=\left\{(m^2+m)(m^2+m-1)+m\right\}\cdot\left(\frac{1}{4}m^2\right)-\frac{1}{4}m^6=$$

$$=\left\{m^4+m^3-\cancel{m^2}+m^3+\cancel{m^2}-\cancel{m}+\cancel{m}\right\}\cdot\left(\frac{1}{4}m^2\right)-\frac{1}{4}m^6=$$

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

$$=\cancel{\frac{1}{4}m^6}+\frac{1}{2}m^5-\cancel{\frac{1}{4}m^6}=\boxed{\frac{1}{2}m^5}$$

$$\left[\left(\frac{1}{2}x+\frac{2}{3}y^2\right)\left(6x-18y^2\right)-4\left(x^2-\frac{39}{16}y^4\right)+\left(x+\frac{9}{2}y^2\right)\left(x+\frac{1}{2}y^2\right)\right]:xy=$$

$$=\left[\cancel{3x^2}-9xy^2+4xy^2-12y^4\cancel{-4x^2}+\frac{39}{4}y^4+\cancel{x^2}+\frac{1}{2}xy^2+\frac{9}{2}xy^2+\frac{9}{4}y^4\right]:xy=$$

$$=\left[\left(-9+\frac{1}{2}+\frac{9}{2}\right)xy^2+\left(-12+\frac{39}{4}+\frac{9}{4}\right)y^4\right]:xy=$$

$$=\left[\left(-5+\cancelto{5}{\frac{10}{2}}\right)xy^2+\left(-12+\cancelto{12}{\frac{48}{4}}\right)y^4\right]:xy=$$

$$=0:xy=\underline{0}$$