LEZIONE 16

Espressioni polinomiali

$$\left[\left(-\frac{2}{3}ax\right)^2+\frac{1}{2}ax\cdot\left(\frac{4}{3}a+\frac{5}{2}x\right)+a\cdot\left(\frac{2}{3}ax-\frac{5}{4}x^2\right)\right]:(-ax)=$$

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

$$=\left[\frac{4}{9}a^2x^2+\frac{\cancel{4}^{2}}{\cancel{6}_{3}}a^2x+\cancel{\frac{5}{4}ax^2}+\frac{2}{3}a^2x-\cancel{\frac{5}{4}ax^2}\right]:(-ax)=$$

$$=\left[\frac{4}{9}a^2x^2+\frac{2}{3}a^2x+\frac{2}{3}a^2x\right]:(-ax)=$$

$$=\left[\frac{4}{9}a^2x^2+\frac{4}{3}a^2x\right]:(-ax)=-\left(\frac{4}{9}:1\right)ax-\left(\frac{4}{3}:1\right)a=$$

$$=\boxed{-\frac{4}{9}ax-\frac{4}{3}a}$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$=\left[\cancel{-x^2}-5xy^2+\frac{-48+39}{4}y^4+\cancel{x^2}+\frac{1}{2}xy^2+\frac{9}{2}xy^2+\frac{9}{4}y^4\right]:xy=$$

$$=\left[\cancel{\left(-5+\frac{1}{2}+\frac{9}{2}\right)}xy^2+\cancel{\left(-\frac{9}{4}+\frac{9}{4}\right)}y^4\right]:xy$$

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