

ESERCIZI IN PIÙ

LE ESPRESSIONI CON I POLINOMI

Semplifica le seguenti espressioni.

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

$$2 \quad \left(\frac{1}{5}b^2 \right)^3 \left(-\frac{5}{2}a^2b \right)^2 + \frac{1}{5}(-a^2b)^2(-b^3)^2 + 5b^2 \left(\frac{1}{2}a^2b^3 - \frac{1}{5}a^2b^3 - \frac{1}{10}a^2b^3 \right)^2 - \left(\frac{1}{2}b^2 \right)^3 (2a^2b)^2 \quad \left[-\frac{1}{20}a^4b^8 \right]$$

$$3 \quad \left\{ \left(\frac{1}{2}x^2 \right)^3 [-4x(-y)^4 : (-y^2)^2]^3 \right\}^2 : (-2x^3)^5 + \left[\frac{1}{2}x^3y - (x^2y^2)^2 : \left(+\frac{8}{3}xy^3 \right) \right] + \left(-\frac{1}{2}x \right)^3 (2+y) \quad \left[-\frac{9}{4}x^3 \right]$$

$$4 \quad [a - 0,2a^2 : (-0,3a)^2 + 0,6(b+3)](a-b) + (-5a^2)^3 : (-5a^3)^2(a - 0,2b^2) + 0,3b(a-b) - a(a-5) \quad [0]$$

$$5 \quad (a^2+1) \left[1 - \frac{2}{3}a - \frac{5}{4}b \right] + 2a^2 \left(\frac{1}{3}a+b \right) - \frac{3}{4}a^2(b+4) + 2 \left(a^2 + \frac{1}{3}a - \frac{1}{2} \right) + \frac{5}{4}b \quad [0]$$

$$6 \quad a \cdot (a^3-1) - (a-1)[a^3(a+1) - a^4] - (a-1)^2(a+1) + (1-a) \quad [a^2-a]$$

$$7 \quad \left[\left(\frac{1}{2}a^2b \right)^2 + \frac{1}{6}a^2(-3ab)^3 \right] + 2b^2 \left(\frac{1}{2}a^2 \right)^2 + 7a^3b(-ab)^2 \quad \left[\frac{3}{4}a^4b^2 + \frac{5}{2}a^5b^3 \right]$$

$$8 \quad \frac{4}{3}y^6 - \left\{ \left[\left(\frac{1}{3}xy^2 \right)^2 : \frac{1}{9}x^2 \right]^3 + 3^2 \left[\left(\frac{1}{12}x^6y^4 \right) : \left(-\frac{1}{4}x^6 \right) \right]^3 \right\} : \frac{y^6}{4} \quad \left[-\frac{4}{3}y^6 \right]$$

$$9 \quad \frac{2}{3} \left[\frac{9}{2}b - \frac{1}{4}ab - \left(\frac{3}{2}b \right)^2 \right] - [-(2ab)^2 : (2ab)] + \left(\frac{3}{2^3}b + \frac{7}{4} - \frac{1}{2}a \right) 4b \quad \left[10b - \frac{1}{6}ab \right]$$

$$10 \quad \frac{\left\{ \left[\frac{1}{3}xy^2 - \left(\frac{2}{3}xy \right)^2 : \left(\frac{1}{3}x \right) \right]^3 - \left(\frac{3}{2}xy^2 \right)^2 \cdot \frac{1}{3}xy^2 \right\}^2}{\left[7xy^3 \cdot \left(-\frac{1}{2}xy^2 \right)^4 \right]} \quad [7xy]$$

$$11 \quad \left[\left(\frac{1}{5}ab^2 \right)^3 : \left(-\frac{1}{25}b \right)^2 + \frac{5}{3}a^4 \cdot (-b)^5 \right] : (5b)^3 - \frac{1}{5}a \left[\frac{1}{5}a^2b - (3a)^3 \left(-\frac{1}{9}b \right)^2 \right] \quad \left[\frac{4}{75}a^4b^2 \right]$$

$$12 \quad 9(x^2y)^2 + \frac{1}{4}x(xy+3y) - \frac{xy}{3}(3x+1) - x^2(3xy)^2 \quad \left[-\frac{3}{4}x^2y + \frac{5}{12}xy \right]$$

$$13 \quad \frac{1}{3}x \left(\frac{1}{2} + y - 9x \right) + \frac{y}{2} \left(-\frac{2}{3}x + \frac{y^2x^3}{7} \right) + (2xy)^2 + (xy)^2(xy-4) + x^2(y+3) \quad \left[\frac{1}{6}x + x^2y + \frac{15}{14}x^3y^3 \right]$$

$$14 \quad b^2 \cdot \left(\frac{1}{3}a^2 + b^3 \right) \cdot (a^4b^2 - 1) - \frac{1}{12}(2a^3b^2)^2 + b^2 \left(\frac{ab}{3} \right)^2 - a^2b^4 \left(a^2b^3 + \frac{1}{4} \right) \quad \left[-\frac{1}{3}a^2b^2 - \frac{5}{36}a^2b^4 - b^5 \right]$$

$$15 \quad (x^2 - y^2)(x^4 + y^4 + x^2y^2)(x + 1) - x^2(x^5 + x^4 + 1) + y^2(y^4 + xy^4 + 1) \quad [-x^2 + y^2]$$

$$16 \quad \left(\frac{1}{3}x^3y^2\right)^2 - \left(\frac{1}{3}x^3y^2 + 3x\right)\left(\frac{1}{3}x^3y^2 - 3y\right) + xy(xy + 3)(xy - 3) - 2(xy)^3 \quad [-x^4y^2]$$

$$17 \quad \frac{1}{2}(xy)^2\left(\frac{3}{4}x^3 + \frac{x}{3} + \frac{1}{2}\right) - \left(\frac{xy}{2} + 3\right)\left(\frac{xy}{2} - 3\right) + \frac{x^2}{6}\left(\frac{xy^2}{2} - \frac{9}{4}x^3y^2\right) \quad \left[\frac{1}{4}x^3y^2 + 9\right]$$

$$18 \quad \left(\frac{1}{6}x^2 + xy\right)\left(-\frac{1}{9}x + \frac{2}{3}y\right) + \left(\frac{1}{7}xy - \frac{8}{3}y^2\right)(x - 3y) + \frac{1}{2}\left(\frac{1}{3}x\right)^3 - (2y)^3 \quad \left[-\frac{17}{7}xy^2 + \frac{1}{7}x^2y\right]$$

$$19 \quad \frac{9}{2}x^6\left(\frac{1}{3}x^2y^4\right)^3 - \left[\frac{4}{3}x^4y^6\left(\frac{1}{4}x^4y^3\right)^2 + \frac{1}{6}y^6\left(\frac{1}{2}x^4y^2\right)^3\right] + (x^3y)^2 \quad \left[\frac{1}{16}x^{12}y^{12} + x^6y^2\right]$$

$$20 \quad (x + y)(x + y + 1)(x + y - 1) - (x + y)[x^2(x + 2) - x^3 - x^2] - (x + y)[y^2(y + 2) - y^2 - y^3] + \\ - (x + y)(2xy + 1) \quad [-2x - 2y]$$