

14/11/2019

$$\begin{aligned}
 \text{234} \quad & \left(-\frac{\cancel{2}}{2}x^2y\right)\left(-\frac{\cancel{4}}{2}xy\right) - (-2x)(-x^2y^2) + \left(\frac{1}{2}x^2y - \frac{3}{2}x^2y\right)\left(-\frac{1}{3}x^3y\right)(+6xy^4) = \\
 & = \cancel{2}x^3y^2 - \cancel{2}x^3y^2 + \frac{1-3}{2}x^2y \cdot \left(-\frac{1}{\cancel{3}}x^3y\right)\left(\cancel{6}xy^4\right) = \\
 & = -\frac{\cancel{2}}{\cancel{2}}x^2y \cdot (-2x^4y^5) = -x^2y(-2x^4y^5) = \boxed{2x^6y^6}
 \end{aligned}$$

$$\begin{aligned}
 \text{235} \quad & (3^{-12}a^3b^2)(3^{10}a^5b) + \left(-\frac{3}{7}\right)^{-2}a^2b^3\left(-\frac{1}{7}a^6\right) + \left(\frac{3}{2}\right)^{-1}a^2b \cdot (a^6b^2) = \\
 & = \overset{\substack{\uparrow \\ 3^{-12} \cdot 3^{10}}}{3^{-2}}a^8b^3 + \left(-\frac{7}{3}\right)^2a^2b^3\left(-\frac{1}{7}a^6\right) + \frac{2}{3}a^2b \cdot (a^6b^2) = \\
 & = \frac{1}{9}a^8b^3 + \frac{\cancel{49}}{9}a^2b^3\left(-\frac{1}{\cancel{7}_1}a^6\right) + \frac{2}{3}a^8b^3 = \\
 & = \frac{1}{9}a^8b^3 - \frac{7}{9}a^8b^3 + \frac{2}{3}a^8b^3 = \left(\frac{1}{9} - \frac{7}{9} + \frac{2}{3}\right)a^8b^3 = \\
 & = \frac{\cancel{1} - \cancel{7} + \cancel{6}}{9}a^8b^3 = \boxed{0}
 \end{aligned}$$

ATTENZIONE!!! PRIMA LA POTENZA!

$$237 \quad (-2x^n)(-3x) + (2x)(-x^n) - (3x)x^n + x^{n+1} =$$

$$= 6x^{n+1} - 2x^{n+1} - 3x^{n+1} + x^{n+1} =$$

$$= (6 - 2 - 3 + 1)x^{n+1} = \boxed{2x^{n+1}}$$

$$243 \quad (-3x^2y^3)^3$$

$$(4ab^2)^2$$

$$(-3ab^2c^4)^2$$

$$\bullet (-3x^2y^3)^3 = (-3)^3 \cdot (x^2)^3 \cdot (y^3)^3 = -27x^6y^9$$

APPLICO LA PROPRIETÀ

$$(a \cdot b)^m = a^m \cdot b^m$$

$$\bullet (4ab^2)^2 = 4^2 \cdot a^2 \cdot (b^2)^2 = 16a^2b^4$$

$$\bullet (-3ab^2c^4)^2 = (-3)^2 \cdot a^2 \cdot (b^2)^2 \cdot (c^4)^2 = 9a^2b^4c^8$$

$$246 \quad \left(+\frac{5}{4}a^3bc^2\right)^2$$

$$\left(-\frac{1}{10}x^{10}y^4\right)^2$$

$$\left(-\frac{1}{2}mn^3\right)^4$$

$$\left(+\frac{5}{4}a^3bc^2\right)^2 = \frac{25}{16}a^6b^2c^4$$

$$\left(-\frac{1}{10}x^{10}y^4\right)^2 = \frac{1}{100}x^{20}y^8$$

$$\left(-\frac{1}{2}mn^3\right)^4 = \frac{1}{16}m^4n^{12}$$

247 $\left[\left(-\frac{1}{2} ab^2 \right)^3 \right]^2$

$$\left[(-2a)^3 \right]^2$$

$$\left[-2(-x^2)^3 \right]^3$$

$$\bullet \left[\left(-\frac{1}{2} ab^2 \right)^3 \right]^2 = \left(-\frac{1}{2} ab^2 \right)^6 = \frac{1}{64} a^6 b^{12}$$

$$\bullet \left[(-2a)^3 \right]^2 = (-2a)^6 = 64a^6$$

$$\bullet \left[-2(-x^2)^3 \right]^3 = \left[-2(-x^6) \right]^3 = \left[2x^6 \right]^3 = 8x^{18}$$



SI PUÒ ANCHE VEDERE COME $[a \cdot b]^m$ (con $a = -2$ e $b = (-x^2)^3$)

QUINDI

$$= (-2)^3 \cdot (-x^2)^9 = (-8) \cdot (-x^{18}) = 8x^{18}$$

251 $(x^2 y^n z^{3n})^{2n}$

$$(-x^n)^{2n}$$

$$(x^n y^{2n^2})^{3n}$$

$n \in \mathbb{N}$

$$\bullet (x^2 y^n z^{3n})^{2n} = (x^2)^{2n} \cdot (y^n)^{2n} \cdot (z^{3n})^{2n} =$$

$$= x^{4n} y^{2n^2} z^{6n^2}$$

$$\bullet (-x^n)^{2n} = +x^{2n^2} \quad (\text{l'esponente } 2n \text{ è pari})$$

$$\bullet (x^n y^{2n^2})^{3n} = x^{3n^2} y^{6n^3}$$

$$281 \quad \left(-\frac{1}{3}xy^2\right)^2 + (-2xy^2)\left(-\frac{1}{3}xy^2\right) + \left(xy^2 - \frac{1}{3}xy^2\right)^2 - \frac{2}{9}x^2y^4$$

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

$$= \frac{1}{9}x^2y^4 + \frac{2}{3}x^2y^4 + \frac{4}{9}x^2y^4 - \frac{2}{9}x^2y^4 =$$

$$= \frac{1+6+4-2}{9}x^2y^4 = \frac{9}{9}x^2y^4 = x^2y^4$$

DIVISIONE DI MONOMI

$$298 \quad (9x^3) : (-3x) = [9 : (-3)] x^{3-1} = -3x^2$$

$$299 \quad (x^3y^2z) : (-2xyz) = [1 : (-2)] x^{3-1} y^{2-1} z^{1-1} =$$

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

$$300 \quad \left(-\frac{1}{2}x^3y^5\right) : \left(\frac{1}{4}xy^2\right) =$$

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

$$\left(-\frac{2}{5}a^3b^4c^{10}\right) : \left(-\frac{8}{25}a^3b^3c^8\right) =$$

$$= -\frac{\cancel{2}}{\cancel{5}} \cdot \left(-\frac{\cancel{25}^5}{\cancel{8}_4}\right) a^0 b^1 c^2 = \frac{5}{4}bc^2$$

314 $\left(\frac{2}{3}x^5y^2\right)^2 : \left(-\frac{1}{3}x^2y\right)^3 =$

$$= \left(\frac{4}{9}x^{10}y^4\right) : \left(-\frac{1}{27}x^6y^3\right) =$$

$$= \frac{4}{\cancel{9}_1} \cdot \left(-\frac{\cancel{27}^3}{\cancel{27}}\right) x^4y = -12x^4y$$

$$\left(\frac{3}{2}x^5y^3\right)^3 : \left(-2x^3y^2\right)^2 =$$

$$= \left(\frac{27}{8}x^{15}y^9\right) : \left(4x^6y^4\right) =$$

$$= \frac{27}{8} \cdot \frac{1}{4} x^9y^5 = \frac{27}{32}x^9y^5$$

$$348 \quad \left[\left(\frac{1}{2}t - \frac{2}{3}t \right)^4 (-6t)^5 \right] : (t^4)^2 + \frac{2}{9} \left(-\frac{3}{2}t \right)^4 : \left(\frac{3}{2}t \right)^3 =$$

$$= \left[\left(\frac{3-4}{6}t \right)^4 \cdot (-6t)^5 \right] : (t^8) + \frac{2}{9} \cdot \left(\frac{3}{2}t \right)^4 =$$

$$= \left[\left(\frac{1}{6}t \right)^4 \cdot (-6t)^5 \right] : t^8 + \frac{1}{3}t =$$

$$= \left[\frac{1}{6^4}t^4 \cdot (-6^5t^5) \right] : t^8 + \frac{1}{3}t =$$

$$= \left[-6t^9 \right] : t^8 + \frac{1}{3}t =$$

$$= -6t + \frac{1}{3}t = \frac{-18 + 1}{3}t \quad \downarrow = -\frac{17}{3}t$$

$$342 \quad \left[\left(-\frac{1}{2}m + m \right)^2 + \left(\frac{3}{2}m - m \right)^2 \right] : \left(-\frac{m}{2} \right) + (-2mn)^3 : (-16m^2n^3) =$$

$$= \left[\left(\frac{-1+2}{2}m \right)^2 + \left(\frac{3-2}{2}m \right)^2 \right] : \left(-\frac{m}{2} \right) + (-8m^3n^3) : (-16m^2n^3) =$$

$$= \left[\left(\frac{1}{2}m \right)^2 + \left(\frac{1}{2}m \right)^2 \right] : \left(-\frac{m}{2} \right) + (-8) \cdot \left(-\frac{1}{16} \right) m =$$

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

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

$$= \frac{1}{2} \cdot (-2)m + \frac{1}{2}m = -m + \frac{1}{2}m = \frac{-2+1}{2}m = \boxed{-\frac{1}{2}m}$$

$$343 \quad \left[\left(\frac{\cancel{15}^3}{\cancel{2}^1} a^2 b \right) \left(\frac{\cancel{4}^2}{\cancel{8}^1} a b^4 \right) \right] : (2a^2 b^4) - 4ab + (+2a)(-3b) - (-3a^2 b)^3 : (3a^5 b^2) =$$

$$= [6a^3 b^5] : (2a^2 b^4) - 4ab - 6ab - (-27a^6 b^3) : (3a^5 b^2) =$$

$$= 3ab - 4ab - 6ab - (-9ab) =$$

$$= 3ab - 4ab - 6ab + 9ab = 2ab$$