

LEZIONE 9

Espressioni algebriche contenenti monomi

$$\begin{aligned}
 & \frac{3}{5} + \frac{3}{8}x^3 : \left(-\frac{3}{4}x\right) + \frac{1}{2}x^{-2} + \frac{2}{8} \left(-\frac{8}{3}x\right) - \frac{3}{4}x^5 : \left(-\frac{1}{2}x^3\right) = \\
 & = \frac{3}{5} - \left(\frac{3}{8} \cdot \frac{4}{3}\right)x^2 + \frac{1}{2}x^{-2} - \frac{2}{3}x + \left(\frac{3}{4} \cdot \frac{2}{1}\right)x^2 = \\
 & = \frac{3}{5} - \frac{3}{2}x^2 + \frac{1}{2}x^{-2} - \frac{2}{3}x + \frac{3}{2}x^2 = \\
 & = \left(\frac{1}{2} - \frac{2}{3}\right)x + \frac{3}{5} - \frac{2}{1} = \left(\frac{3-4}{6}\right)x + \frac{3-10}{5} = \boxed{-\frac{1}{6}x - \frac{7}{5}}
 \end{aligned}$$

Your paragraph text

$$\begin{aligned}
& -\frac{5}{8} m^3 m^5 \left(-\frac{3}{2} m^3 m^4 \right) : \left(\frac{9}{10} m^5 m^6 \right) + \frac{21}{4} m^5 m^7 : -\frac{9}{2} m^4 m^4 = \\
& = -\frac{5}{8} m^3 m^5 \left(-\frac{3}{2} \cdot \frac{5}{8} m^2 m^{-2} \right) - \frac{21}{4} \cdot \frac{1}{8} m m^3 = \\
& = -\frac{5}{8} m^3 m^5 \left(-\frac{5}{3} m^2 m^{-2} \right) - \frac{7}{6} m m^3 = \\
& = \frac{25}{24} m m^3 - \frac{7}{6} m m^3 = \left(\frac{25}{24} - \frac{7}{6} \right) m m^3 = \left(\frac{25 - 28}{24} \right) m m^3 = \\
& = -\frac{3}{24} m m^3 = -\frac{1}{8} m m^3
\end{aligned}$$

$$\begin{aligned} & \left(\frac{3}{4} a^3 b^1 c^4\right) : \left(-3 a^1 b^1 c^2\right) \cdot \left(-\frac{1}{3} ac\right) = \\ & = \left(-\frac{3}{4} \cdot \frac{1}{3} a^2 c^2\right) \cdot \left(-\frac{1}{3} ac\right) = \\ & = \left(-\frac{1}{4} a^2 c^2\right) \cdot \left(-\frac{1}{3} ac\right) = \left(\frac{1}{4} \cdot \frac{1}{3}\right) a^3 c^3 = \underline{\underline{\frac{1}{12} a^3 c^3}} \end{aligned}$$

$$\begin{aligned}
 & b - [2b + bm : (3m - \frac{m}{2})] + 8b^3 : (4b^2) = \quad \left(\frac{m}{2} = \frac{1}{2}m\right) \\
 & = b - [2b + bm : (\frac{6-1}{2})m] + 2b = \\
 & = b - [2b + bm : \frac{5}{2}m] + 2b = \\
 & = b - [2b + (1 \cdot \frac{2}{5})b] + 2b = \\
 & = b - [2b + \frac{2}{5}b] + 2b = \frac{b}{1} - \frac{2b}{1} - \frac{2}{5}b + \frac{2b}{1} = \\
 & = (\frac{5}{5} - \frac{2}{5} - \frac{2}{5} + \frac{10}{5})b = \boxed{\frac{3}{5}b}
 \end{aligned}$$

$$\begin{aligned}
& \left[\left(\frac{1}{3} ab^2 \right) (-3a^2b) (-5a^2b) \right] : \left[(4a^2b) (-3ab^3) \left(\frac{1}{3} b \right) \right] = \\
& - \left[\left(\frac{1}{3} \cdot \cancel{3} \cdot 5 \right) a^5 b^4 \right] : \left[- \left(4 \cdot \cancel{3} \cdot \frac{1}{3} \right) a^3 b^4 \right] = \\
& = 5 a^5 b^4 : (-4 a^3 b^4) = \\
& = \boxed{-\frac{5}{4} a^2}
\end{aligned}$$

$$\begin{aligned}
& \left[\left(-\frac{3}{5} x^3 y^3 z^5 \right) : \left(-\frac{1}{5} x^3 y^3 z^3 \right) + \frac{3}{2} \cdot \left(-\frac{1}{2} z^2 \right) \right] : 3z = \\
& = \left[\left(\frac{3}{1} \cdot \frac{1}{1} \right) z^2 - \frac{3}{4} z^2 \right] : 3z = \\
& = \left[\frac{3}{1} z^2 - \frac{3}{4} z^2 \right] : 3z = \\
& = \left[\frac{12 - 3}{4} \right] z^2 : 3z = \frac{9}{4} z^2 : 3z = \left(\frac{9}{4} \cdot \frac{1}{3} \right) z = \boxed{\frac{3}{4} z}
\end{aligned}$$

$$\begin{aligned}
& \int \left[\frac{1}{3} ax^4 y^2 : \left(-\frac{1}{3} ax^3 y\right) \right] : \left(-\frac{1}{5} xy\right) \cdot \left(\frac{1}{3} axy\right) = \\
& = \int \left[-3xy : \left(-\frac{1}{5} xy\right) \right] \cdot \left(\frac{1}{3} axy\right) = \\
& = (3 \cdot 5) \cdot \frac{1}{3} axy = \cancel{5} \cdot \frac{1}{\cancel{3}} axy = 5axy
\end{aligned}$$

$$\begin{aligned}
& -\frac{1}{3}at \cdot \left(\frac{2}{3}t\right) - 2a^3t^2 : 3a^2 + \frac{5}{2}a^3t^2 : (-3dt) + \frac{3}{2}at \left(\frac{1}{2}a\right) = \\
& = -\frac{2}{3}at^2 - \frac{2}{3}at^2 - \left(\frac{5}{2} \cdot \frac{1}{3}\right)a^2t + \frac{3}{4}a^2t = \\
& = \underbrace{-\frac{2}{3}at^2 - \frac{2}{3}at^2}_{-\frac{4}{3}at^2} - \underbrace{\frac{5}{6}a^2t + \frac{3}{4}a^2t}_{\left(-\frac{5}{6} + \frac{3}{4}\right)a^2t} = \\
& = \left(-\frac{2}{3} - \frac{2}{3}\right)at^2 + \left(-\frac{5}{6} + \frac{3}{4}\right)a^2t = \\
& = \left(-\frac{4}{3}\right)at^2 + \left(\frac{-10+9}{12}\right)a^2t = \boxed{-\frac{4}{3}at^2 - \frac{1}{12}a^2t}
\end{aligned}$$

$$\begin{aligned} 45a^3b^{4m} : (-9ab^{3m}) &= \\ = -5a^2b^m \end{aligned}$$

$$\begin{aligned}
& (b^m c^m + \frac{1}{2} b^m c^m) \cdot (2c^m - 3c^m) : (\frac{3}{2} b^m - b^m) = \\
& = \left(\frac{2 + 1}{2} b^m c^m \right) \cdot (-c^m) \left(\frac{3 - 2}{2} b^m \right) = \\
& = \left(\frac{3}{2} b^m c^m \right) \cdot (-c^m) : \left(\frac{1}{2} b^m \right) = \\
& = \left(\frac{3}{2} b^m c^{2m} \right) : \left(\frac{1}{2} b^m \right) = \left(\frac{3}{\cancel{2}} \cdot \frac{\cancel{2}}{1} \right) c^{2m} = \boxed{3c^{2m}}
\end{aligned}$$