

Espressioni con relativi e potenze con esponente negativo. Complete di soluzione guidata.
Signed numbers calculus.

1.	$(2^{-2})^4 \cdot (2^{-2})^{-4}$	soluzione
2.	$[(-2)^{-2}]^{-3} : (-2)^5 \cdot [(-2)^4]^{-2}$	soluzione
3.	$2^2 : 2^{-6} : 2^6 + 2 : 2^{-6} : (2^6 \cdot 2^2) + 2^9 \cdot 2^{-10}$	soluzione
4.	$5^{-7} : 5^{-5} \cdot 5^3 + 1 : 5^{-1} - 5^{-3} : 5^{-5}$	soluzione
5.	$(3^{-2} \cdot 3^{-5} \cdot 3^{-3}) : (3^3 \cdot 3)^{-2}$	$\left[\frac{1}{9}\right]$ soluzione
6.	$[(-5)^{-2}]^5 : (-5)^{-5} \cdot [(-5)^{-4}]^2 : [(-5)^{-4}]^3$	$\left[-\frac{1}{5}\right]$ soluzione
7.	$-\left(\frac{3}{2}\right)^{-2} - \left[\left(\frac{1}{2}\right)^{-1} - 5\right]^{-2} : \left(+\frac{1}{3}\right)^{-1}$	$\left[-\frac{13}{27}\right]$ soluzione
8.	$\left(3 - \frac{10}{7}\right) \cdot \left[\left(\frac{3}{2}\right)^{-1} - \left(2 - \frac{1}{2}\right)^{-2} \cdot \left(\frac{3}{20} + \frac{6}{35}\right)\right]^{-1} : \left(\frac{1}{3}\right)^{-1}$	[1] soluzione
9.	$\left[\left(1 + \frac{1}{2}\right) \cdot \left(\frac{3}{2}\right)^{-1} - \left(2 - \frac{1}{3}\right) \cdot \left(-\frac{5}{3}\right)^{-2} \cdot (3)^{-1}\right] \cdot \frac{4}{5}$	$\left[\frac{16}{25}\right]$ soluzione
10.	$\left\{1 - \left[1 - \left(\frac{1}{3} + \frac{1}{6}\right)\right]\right\}^{-2} \cdot \left[2 - \left(\frac{1}{2} + \frac{7}{10}\right) : 3\right]^{-2} \cdot \left(-\frac{3}{4} + \frac{1}{2}\right)^{-2}$	[25] soluzione
11.	$\left[\left(\frac{1}{2}\right)^6 : \left(\frac{1}{2}\right)^4\right]^{-2} : \left[\left(\frac{1}{2}\right)^{-2} \cdot \left(\frac{1}{2}\right)^{-2}\right]$	[1] soluzione
12.	$\left(-\frac{3}{2}\right)^{-2} : \left\{\left[\left(-\frac{1}{2}\right)^2 + (3)^{-1} \cdot (2)^{-1}\right] : \left(-\frac{1}{2}\right) + \left(\frac{1}{2}\right)^2 : \left(-\frac{14}{3}\right)^{-1}\right\}$	$\left[-\frac{2}{9}\right]$ soluzione
13.	$\left[\left(-\frac{2}{3}\right)^{-3}\right]^2 : \left(-\frac{2}{3}\right)^2 \cdot \left(-\frac{2}{3}\right)^7 \cdot \left(-\frac{2}{3}\right)^2$	$\left[-\frac{2}{3}\right]$ soluzione
14.	$\left[\left(-\frac{8}{3}\right)^{21}\right]^{-3} : \left(-\frac{8}{3}\right)^2 \cdot \left(-\frac{8}{3}\right)^8 \cdot \left(-\frac{8}{3}\right)^{-2}$	$\left[\frac{9}{64}\right]$ soluzione

15.	$\left[\left(-\frac{7}{4} \right)^{-3} \right]^2 : \left(-\frac{7}{4} \right)^2 \cdot \left(-\frac{7}{4} \right)^8 \cdot \left(-\frac{7}{4} \right)^{-2}$	$\left[\frac{16}{49} \right]$ soluzione
16.	$\frac{2}{3} \cdot \left[\left(-1 + \frac{3}{4} \right) : \left(-\frac{1}{4} \right) - \left(-\frac{1}{2} - 3 \right) : \left(-\frac{1}{2} \right)^3 \right] \cdot \left(-\frac{1}{3} \right)^2 - 1 + \left(\frac{1}{3} \right)^{-1}$	soluzione
17.	$\left\{ \left[\left(\frac{1}{5} \right)^2 \cdot \left(\frac{15}{2} \right)^2 \right]^{-1} \cdot \left[\left(\frac{9}{5} \right)^3 : \left(\frac{6}{5} \right)^3 \right] \right\}^{-1} \cdot \left(\frac{2}{3} \right)^2$	soluzione
18.	$-\left(\frac{8}{3} \right)^{-1} \cdot \left[3^4 : \left(-\frac{1}{3} \right)^{-4} + 3 \right] - (-2)^{-1} \cdot \frac{1}{2}$	soluzione
19.	$\left[\left(\frac{9}{4} \right)^6 : \left(\frac{9}{4} \right)^4 \right]^{-1} \cdot \left[\left(\frac{2}{3} \right)^5 : \left(\frac{2}{3} \right)^7 \right]^1 : \left(-\frac{1}{2} \right)^0$	soluzione
20.	$\left[-\left(\frac{25}{49} \right)^2 : \left(\frac{5}{7} \right)^2 : \left(\frac{5}{7} \right)^3 \right] : \left(\frac{15}{14} \right)^{-1}$	soluzione
21.	$\left[\left(\frac{1}{2} \right)^2 : \left(\frac{1}{2} \right)^3 \right] \cdot \left[-\frac{3}{2} - \left(-\frac{9}{4} \right)^2 \cdot \left(1 + \frac{5}{4} \right)^{-2} \right]^{-1}$	soluzione
22.	$\left(\frac{2}{3} + \frac{2}{6} \right)^{-1} + \left[\left(\frac{3}{5} - \frac{1}{10} \right)^2 : \left(1 - \frac{1}{3} \right)^2 \right] - \left(\frac{1}{2} + \frac{2}{3} \right)^0 - \left(\frac{4}{5} \right)^4 : \left(\frac{4}{5} \right)^5$	soluzione
23.	$\left(\frac{1}{3} - \frac{7}{33} \right)^2 \cdot 11^{-2} - \left(\frac{11}{9} \right)^4 : \left(\frac{9}{11} \right)^{-3} - 1$	soluzione
24.	$\left(\frac{33}{4} \right)^{-2} : 11^{-2} - \left(\frac{9}{11} \right)^{-1}$	$\left[\frac{5}{9} \right]$

Esercizi e soluzioni

$$\begin{aligned}(2^{-2})^4 \cdot (2^{-2})^{-4} &= \\ &= (2^{-2 \cdot 4}) \cdot (2^{-2 \cdot (-4)}) = \\ &= 2^{-8} \cdot 2^8 = \\ &= 2^{-8+8} = \\ &= 2^0 = 1\end{aligned}$$

$$\begin{aligned}[(-2)^{-2}]^{-3} : (-2)^5 \cdot [(-2)^4]^{-2} &= \\ &= (-2)^{-2 \cdot (-3)} : (-2)^5 \cdot (-2)^{4 \cdot (-2)} = \\ &= (-2)^6 : (-2)^5 \cdot (-2)^{-8} = \\ &= (-2)^{6 - (-5)} \cdot (-2)^{-8} = \\ &= (-2)^{6+5} \cdot (-2)^{-8} = \\ &= (-2)^{11} \cdot (-2)^{-8} = \\ &= (-2)^{11-8} = \\ &= (-2)^3 = -8\end{aligned}$$

$$\begin{aligned}2^2 : 2^{-6} : 2^6 + 2 : 2^{-6} : (2^6 \cdot 2^2) + 2^9 \cdot 2^{-10} &= \\ &= 2^{2 - (-6)} : 2^6 + 2^{1 - (-6)} : (2^{6+2}) + 2^{9-10} = \\ &= 2^{2+6} : 2^6 + 2^{1+6} : 2^8 + 2^{-1} = \\ &= 2^{8-6} + 2^{7-8} + \frac{1}{2} = \\ &= 2^2 + 2^{-1} + \frac{1}{2} = \\ 4 + \frac{1}{2} + \frac{1}{2} &= 5\end{aligned}$$

$$\begin{aligned}
 & 5^{-7} : 5^{-5} \cdot 5^3 + 1 : 5^{-1} - 5^{-3} : 5^{-5} = \\
 & = 5^{-7-(-5)} \cdot 5^3 + 5 - 5^{-3-(-5)} = \\
 & = 5^{-2+3} + 5 - 2^{-3+5} = \\
 & = 5 + 5 - 5^2 = \\
 & = 10 - 25 = -15
 \end{aligned}$$

$$\begin{aligned}
 & (3^{-2} \cdot 3^{-5} \cdot 3^{-3}) : (3^3 \cdot 3)^{-2} = \\
 & = (3^{-2-5-3}) : (3^{3+1})^{-2} = \\
 & = (3^{-10}) : (3^4)^{-2} = \\
 & = (3^{-10}) : 3^{4 \cdot (-2)} = \\
 & = (3^{-10}) : 3^{-8} = \\
 & = 3^{-10-(-8)} = \\
 & = 3^{-10+8} = \\
 & = 3^{-2} = \\
 & = \left(\frac{1}{3}\right)^2 = \frac{1}{9}
 \end{aligned}$$

$$\begin{aligned}
 & [(-5)^{-2}]^5 : (-5)^{-5} \cdot [(-5)^{-4}]^2 : [(-5)^{-4}]^3 = \\
 & = (-5)^{-2 \cdot 5} : (-5)^{-5} \cdot (-5)^{-4 \cdot 2} : (-5)^{-4 \cdot 3} = \\
 & = (-5)^{-10} : (-5)^{-5} \cdot (-5)^{-8} : (-5)^{-12} = \\
 & = (-5)^{-10-(-5)+(-8)-(-12)} = \\
 & = (-5)^{-10+5-8+12} = \\
 & = (-5)^{-1} = -\frac{1}{5}
 \end{aligned}$$

$$\begin{aligned} & -\left(\frac{3}{2}\right)^{-2} - \left[\left(\frac{1}{2}\right)^{-1} - 5\right]^{-2} : \left(+\frac{1}{3}\right)^{-1} = \\ & = -\left(\frac{2}{3}\right)^2 - [2 - 5]^{-2} : 3 = \\ & = -\frac{4}{9} - [-3]^{-2} \cdot \frac{1}{3} = \\ & = -\frac{4}{9} - \left[-\frac{1}{3}\right]^2 \cdot \frac{1}{3} = \\ & = -\frac{4}{9} - \frac{1}{9} \cdot \frac{1}{3} = \\ & = -\frac{4}{9} - \frac{1}{27} = \\ & = \frac{-12 - 1}{27} = -\frac{13}{27} \end{aligned}$$

$$\begin{aligned}
& \left(3 - \frac{10}{7}\right) \cdot \left[\left(\frac{3}{2}\right)^{-1} - \left(2 - \frac{1}{2}\right)^{-2} \cdot \left(\frac{3}{20} + \frac{6}{35}\right)\right]^{-1} : \left(\frac{1}{3}\right)^{-1} = \\
& = \frac{21 - 10}{7} \cdot \left[\frac{2}{3} - \left(\frac{4 - 1}{2}\right)^{-2} \cdot \frac{21 + 24}{140}\right]^{-1} : \left(\frac{3}{1}\right)^1 = \\
& = \frac{11}{7} \cdot \left[\frac{2}{3} - \left(\frac{2}{3}\right)^2 \cdot \frac{45}{140}\right]^{-1} : 3 = \\
& = \frac{11}{7} \cdot \left[\frac{2}{3} - \frac{4}{9} \cdot \frac{9}{28}\right]^{-1} : 3 = \\
& = \frac{11}{7} \cdot \left[\frac{2}{3} - \frac{4}{1} \cdot \frac{1}{28}\right]^{-1} : 3 = \\
& = \frac{11}{7} \cdot \left[\frac{2}{3} - \frac{1}{7}\right]^{-1} : 3 = \\
& = \frac{11}{7} \cdot \left[\frac{14 - 3}{21}\right]^{-1} : 3 = \\
& = \frac{11}{7} \cdot \left[\frac{11}{21}\right]^{-1} : 3 = \\
& = \frac{11}{7} \cdot \frac{21}{11} \cdot \frac{1}{3} = 1
\end{aligned}$$

$$\begin{aligned}
& \left[\left(1 + \frac{1}{2}\right) \cdot \left(\frac{3}{2}\right)^{-1} - \left(2 - \frac{1}{3}\right) \cdot \left(-\frac{5}{3}\right)^{-2} \cdot (3)^{-1}\right] \cdot \frac{4}{5} = \\
& = \left[\left(\frac{2+1}{2}\right) \cdot \left(\frac{2}{3}\right) - \left(\frac{6-1}{3}\right) \cdot \left(-\frac{3}{5}\right)^2 \cdot \left(\frac{1}{3}\right)\right] \cdot \frac{4}{5} = \\
& = \left[\left(\frac{3}{2}\right) \cdot \left(\frac{2}{3}\right) - \left(\frac{5}{3}\right) \cdot \left(\frac{9}{25}\right) \cdot \left(\frac{1}{3}\right)\right] \cdot \frac{4}{5} = \\
& = \left[1 - \frac{1}{5}\right] \cdot \frac{4}{5} = \\
& = \left[\frac{5-1}{5}\right] \cdot \frac{4}{5} = \\
& = \left[\frac{4}{5}\right] \cdot \frac{4}{5} = \frac{16}{25}
\end{aligned}$$

$$\begin{aligned}
& \left\{ 1 - \left[1 - \left(\frac{1}{3} + \frac{1}{6} \right) \right] \right\}^{-2} \cdot \left[2 - \left(\frac{1}{2} + \frac{7}{10} \right) : 3 \right]^{-2} \cdot \left(-\frac{3}{4} + \frac{1}{2} \right)^{-2} = \\
& = \left\{ 1 - \left[1 - \frac{2+1}{6} \right] \right\}^{-2} \cdot \left[2 - \frac{5+7}{10} : 3 \right]^{-2} \cdot \left(\frac{-3+2}{4} \right)^{-2} = \\
& = \left\{ 1 - \left[1 - \frac{3^1}{6_2} \right] \right\}^{-2} \cdot \left[2 - \frac{12}{10} \cdot \frac{1}{3} \right]^{-2} \cdot \left(-\frac{1}{4} \right)^{-2} = \\
& = \left\{ 1 - \left[1 - \frac{3^1}{6_2} \right] \right\}^{-2} \cdot \left[2 - \frac{2^4 \mathbf{12}}{10_5} \cdot \frac{1}{3_1} \right]^{-2} \cdot (-4)^2 = \\
& = \left\{ 1 - \frac{1}{2} \right\}^{-2} \cdot \left[\frac{10-2}{5} \right]^{-2} \cdot 16 = \\
& = \left\{ \frac{1}{2} \right\}^{-2} \cdot \left[\frac{8}{5} \right]^{-2} \cdot 16 = \\
& = \left\{ \frac{2}{1} \right\}^2 \cdot \left[\frac{5}{8} \right]^2 \cdot 16 = \\
& = \frac{4}{1} \cdot \frac{25}{64^{16^1}} \cdot \frac{16_1}{1} = 25
\end{aligned}$$

$$\begin{aligned}
& \left[\left(\frac{1}{2} \right)^6 \div \left(\frac{1}{2} \right)^4 \right]^{-2} : \left[\left(\frac{1}{2} \right)^{-2} \cdot \left(\frac{1}{2} \right)^{-2} \right] = \\
& = \left[\left(\frac{1}{2} \right)^{6-4} \right]^{-2} : \left[\left(\frac{1}{2} \right)^{-2-2} \right] = \\
& = \left[\left(\frac{1}{2} \right)^2 \right]^{-2} : \left(\frac{1}{2} \right)^{-4} = \\
& = \left(\frac{1}{2} \right)^{2 \cdot (-2)} : \left(\frac{1}{2} \right)^{-4} = \\
& = \left(\frac{1}{2} \right)^{-4} : \left(\frac{1}{2} \right)^{-4} = \\
& = \left(\frac{1}{2} \right)^{-4 - (-4)} = 1
\end{aligned}$$

$$\begin{aligned} & \left(-\frac{3}{2}\right)^{-2} : \left\{ \left[\left(-\frac{1}{2}\right)^2 + (3)^{-1} \cdot (2)^{-1} \right] : \left(-\frac{1}{2}\right) + \left(\frac{1}{2}\right)^2 : \left(-\frac{14}{3}\right)^{-1} \right\} = \\ & \left(-\frac{3}{2}\right)^{-2} : \left\{ \left[\left(-\frac{1}{2}\right)^2 + (3)^{-1} \cdot (2)^{-1} \right] : \left(-\frac{1}{2}\right) + \left(\frac{1}{2}\right)^2 : \left(-\frac{14}{3}\right)^{-1} \right\} = \\ & = \left(-\frac{2}{3}\right)^2 : \left\{ \left[\frac{1}{4} + \left(\frac{1}{3}\right)^1 \cdot \left(\frac{1}{2}\right)^1 \right] : \left(-\frac{1}{2}\right) + \left(\frac{1}{2}\right)^2 : \left(-\frac{3}{14}\right)^1 \right\} = \\ & = \frac{4}{9} : \left\{ \left[\frac{1}{4} + \frac{1}{3} \cdot \frac{1}{2} \right] : \left(-\frac{1}{2}\right) + \frac{1}{4} : \left(-\frac{3}{14}\right) \right\} = \\ & = \frac{4}{9} : \left\{ \left[\frac{1}{4} + \frac{1}{6} \right] : \left(-\frac{1}{2}\right) + \frac{1}{4} \cdot \left(-\frac{14}{3}\right) \right\} = \\ & = \frac{4}{9} : \left\{ \left[\frac{3+2}{12} \right] : \left(-\frac{1}{2}\right) - \frac{7}{6} \right\} = \\ & = \frac{4}{9} : \left\{ \frac{5}{12} \cdot \left(-\frac{2}{1}\right) - \frac{7}{6} \right\} = \\ & = \frac{4}{9} : \left\{ -\frac{5}{6} - \frac{7}{6} \right\} = \\ & = \frac{4}{9} : \left\{ -\frac{12}{6} \right\} = \\ & = \frac{4}{9} \cdot \left\{ -\frac{1}{2} \right\} = -\frac{2}{9} \end{aligned}$$

$$\begin{aligned} & \left[\left(-\frac{2}{3} \right)^{-3} \right]^2 : \left(-\frac{2}{3} \right)^2 \cdot \left(-\frac{2}{3} \right)^7 \cdot \left(-\frac{2}{3} \right)^2 = \\ & = \left[-\frac{2}{3} \right]^{-3 \cdot 2} : \left(-\frac{2}{3} \right)^2 \cdot \left(-\frac{2}{3} \right)^7 \cdot \left(-\frac{2}{3} \right)^2 = \\ & = \left[-\frac{2}{3} \right]^{-6-2} \cdot \left(-\frac{2}{3} \right)^7 \cdot \left(-\frac{2}{3} \right)^2 = \\ & = \left[-\frac{2}{3} \right]^{-8+7} \cdot \left(-\frac{2}{3} \right)^2 = \\ & = \left[-\frac{2}{3} \right]^{-1+2} = -\frac{2}{3} \end{aligned}$$

$$\begin{aligned} & \left[\left(-\frac{8}{3} \right)^2 \right]^{-3} : \left(-\frac{8}{3} \right)^2 \cdot \left(-\frac{8}{3} \right)^8 \cdot \left(-\frac{8}{3} \right)^{-2} = \\ & \left(-\frac{8}{3} \right)^{-6} : \left(-\frac{8}{3} \right)^2 \cdot \left(-\frac{8}{3} \right)^8 \cdot \left(-\frac{8}{3} \right)^{-2} = \\ & \left(-\frac{8}{3} \right)^{-6-2+8-2} = \\ & = \left(-\frac{8}{3} \right)^{-2} = \\ & = \left(-\frac{3}{8} \right)^2 = \frac{9}{64} \end{aligned}$$

$$\begin{aligned}
 & \left[\left(-\frac{7}{4} \right)^{-3} \right]^2 : \left(-\frac{7}{4} \right)^2 \cdot \left(-\frac{7}{4} \right)^8 \cdot \left(-\frac{7}{4} \right)^{-2} = \\
 & \left(-\frac{7}{4} \right)^{-6} : \left(-\frac{7}{4} \right)^2 \cdot \left(-\frac{7}{4} \right)^8 \cdot \left(-\frac{7}{4} \right)^{-2} = \\
 & \left(-\frac{7}{4} \right)^{-6-2+8-2} = \\
 & = \left(-\frac{7}{4} \right)^{-2} = \\
 & = \left(-\frac{4}{7} \right)^2 = \frac{16}{49}
 \end{aligned}$$

$$\begin{aligned}
 & \frac{2}{3} \cdot \left[\left(-1 + \frac{3}{4} \right) : \left(-\frac{1}{4} \right) - \left(-\frac{1}{2} - 3 \right) : \left(-\frac{1}{2} \right)^3 \right] \cdot \left(-\frac{1}{3} \right)^2 - 1 + \left(\frac{1}{3} \right)^{-1} = \\
 & = \frac{2}{3} \cdot \left[\left(-\frac{1}{4} \right) : \left(-\frac{1}{4} \right) - \left(-\frac{7}{2} \right) : \left(-\frac{1}{8} \right) \right] \cdot \left(\frac{1}{9} \right) - 1 + 3 = \\
 & = \frac{2}{3} \cdot \left[1 - \left(-\frac{7}{2} \right) : \left(-\frac{1}{8} \right) \right] \cdot \left(\frac{1}{9} \right) - 1 + 3 = \\
 & = \frac{2}{3} \cdot [1 - 28] \cdot \left(\frac{1}{9} \right) - 1 + 3 = \\
 & = \frac{2}{3} \cdot [1^3 - 27] \cdot \left(\frac{1}{9} \right) - 1 + 3 = \\
 & = -2 - 1 + 3 = 0
 \end{aligned}$$

$$\begin{aligned} & \left\{ \left[\left(\frac{1}{5} \right)^2 \cdot \left(\frac{15}{2} \right)^2 \right]^{-1} \cdot \left[\left(\frac{9}{5} \right)^3 : \left(\frac{6}{5} \right)^3 \right] \right\}^{-1} \cdot \left(\frac{2}{3} \right)^2 = \\ & = \left\{ \left[\left(\frac{1}{5} \cdot \frac{15}{2} \right)^2 \right]^{-1} \cdot \left[\left(\frac{9}{5} \cdot \frac{5}{6} \right)^3 : \right] \right\}^{-1} \cdot \left(\frac{2}{3} \right)^2 = \\ & = \left\{ \left[3 \right]^{-2} \cdot \left(\frac{3}{2} \right)^3 \right\}^{-1} \cdot \left(\frac{2}{3} \right)^2 = \\ & = \left\{ \left(\frac{3}{2} \right)^{-2+3} \right\}^{-1} \cdot \left(\frac{2}{3} \right)^2 = \\ & = \left\{ \frac{3}{2} \right\}^{-1} \cdot \left(\frac{2}{3} \right)^2 = \\ & = \left(\frac{2}{3} \right) \cdot \left(\frac{2}{3} \right)^2 = \\ & = \left(\frac{2}{3} \right)^{2+1} = \\ & = \left(\frac{2}{3} \right)^3 = \frac{8}{27} \end{aligned}$$

$$\begin{aligned}
& -\left(\frac{8}{3}\right)^{-1} \cdot \left[3^4 \cdot \left(-\frac{1}{3}\right)^{-4} + 3\right] - (-2)^{-1} \cdot \frac{1}{2} = \\
& = -\frac{3}{8} \cdot [3^4 \cdot (-3)^4 + 3] - \left(-\frac{1}{2}\right) \cdot \frac{1}{2} = \\
& = -\frac{3}{8} \cdot [(3 \cdot (-3))^4 + 3] - \left(-\frac{1}{4}\right) = \\
& = -\frac{3}{8} \cdot [(-1)^4 + 3] + \frac{1}{4} = \\
& = -\frac{3}{8} \cdot [1 + 3] + \frac{1}{4} = \\
& = -\frac{3}{8} \cdot [4] + \frac{1}{4} = \\
& = -\frac{3}{2} + \frac{1}{4} = \\
& = \frac{-6 + 1}{4} = -\frac{5}{4}
\end{aligned}$$

$$\begin{aligned}
& \left[\left(\frac{9}{4}\right)^6 : \left(\frac{9}{4}\right)^4\right]^{-1} \cdot \left[\left(\frac{2}{3}\right)^5 : \left(\frac{2}{3}\right)^7\right]^1 : \left(-\frac{1}{2}\right)^0 = \\
& = \left[\left(\frac{9}{4}\right)^{6-4}\right]^{-1} \cdot \left[\left(\frac{2}{3}\right)^{5-7}\right]^1 : 1 = \\
& = \left(\frac{9}{4}\right)^{-2} \cdot \left(\frac{2}{3}\right)^{-2} = \\
& = \left(\frac{9}{4} \cdot \frac{2}{3}\right)^{-2} = \\
& = \left(\frac{3}{2}\right)^{-2} = \\
& = \left(\frac{2}{3}\right)^2 = \frac{4}{9}
\end{aligned}$$


$$\begin{aligned}
 & \left[-\left(\frac{25}{49}\right)^2 : \left(\frac{5}{7}\right)^2 : \left(\frac{5}{7}\right)^3 \right] : \left(\frac{15}{14}\right)^{-1} = \\
 & = \left[-\left(\frac{25}{49} : \frac{5}{7}\right)^2 : \left(\frac{5}{7}\right)^3 \right] : \left(\frac{15}{14}\right)^{-1} = \\
 & = \left[-\left(\frac{5}{7}\right)^2 : \left(\frac{5}{7}\right)^3 \right] : \left(\frac{15}{14}\right)^{-1} = \\
 & = -\left(\frac{5}{7}\right)^{-1} : \left(\frac{15}{14}\right)^{-1} = \\
 & = -\left(\frac{5}{7} : \frac{15}{14}\right)^{-1} = \\
 & = -\left(\frac{5}{7} \cdot \frac{14}{15}\right)^{-1} = \\
 & = -\left(\frac{2}{3}\right)^{-1} = -\frac{3}{2}
 \end{aligned}$$



$$\begin{aligned} & \left[\left(\frac{1}{2} \right)^2 : \left(\frac{1}{2} \right)^3 \right] \cdot \left[-\frac{3}{2} - \left(-\frac{9}{4} \right)^2 \cdot \left(1 + \frac{5}{4} \right)^{-2} \right]^{-1} = \\ & = \left[\left(\frac{1}{2} \right)^{2-3} \right] \cdot \left[-\frac{3}{2} - \frac{81}{16} \cdot \left(\frac{4+5}{4} \right)^{-2} \right]^{-1} = \\ & = \left[\frac{1}{2} \right]^{-1} \cdot \left[-\frac{3}{2} - \frac{81}{16} \cdot \left(\frac{9}{4} \right)^{-2} \right]^{-1} = \\ & = 2 \cdot \left[-\frac{3}{2} - \frac{81}{16} \cdot \frac{16}{81} \right]^{-1} = \\ & = 2 \cdot \left[-\frac{3}{2} - 1 \right]^{-1} = \\ & = 2 \cdot \left[\frac{-3-2}{2} \right]^{-1} = \\ & = 2 \cdot \left(-\frac{5}{2} \right)^{-1} = \\ & = 2 \cdot \left(-\frac{2}{5} \right) = -\frac{4}{5} \end{aligned}$$


$$\begin{aligned}
& \left(\frac{2}{3} + \frac{2}{6}\right)^{-1} + \left[\left(\frac{3}{5} - \frac{1}{10}\right)^2 : \left(1 - \frac{1}{3}\right)^2\right] - \left(\frac{1}{2} + \frac{2}{3}\right)^0 - \left(\frac{4}{5}\right)^4 : \left(\frac{4}{5}\right)^5 = \\
& = \left(\frac{2}{3} + \frac{1}{3}\right)^{-1} + \left[\left(\frac{6-1}{10}\right)^2 : \left(\frac{3-1}{3}\right)^2\right] - 1 - \left(\frac{4}{5}\right)^{4-5} = \\
& = 1 + \left[\left(\frac{5^1}{10_2}\right)^2 : \left(\frac{2}{3}\right)^2\right] - 1 - \left(\frac{4}{5}\right)^{-1} = \\
& = 1 + \left[\frac{1}{4} \cdot \frac{9}{4}\right] - 1 - \frac{5}{4} = \\
& = 1 + \frac{9}{16} - 1 - \frac{5}{4} = \\
& = \frac{9}{16} - \frac{5}{4} = \\
& = \frac{9-20}{16} = -\frac{11}{16}
\end{aligned}$$


$$\begin{aligned}
& \left(\frac{1}{3} - \frac{7}{33}\right)^2 \cdot 11^{-2} - \left(\frac{11}{9}\right)^4 : \left(\frac{9}{11}\right)^{-3} - 1 = \\
& = \left(\frac{11-7}{33}\right)^2 : \left(\frac{1}{11}\right)^2 - \left(\frac{11}{9}\right)^4 : \left(\frac{11}{9}\right)^3 - 1 = \\
& = \left(\frac{4}{33}\right)^2 : \left(\frac{1}{11}\right)^2 - \left(\frac{11}{9}\right)^{4-3} - 1 = \\
& = \left(\frac{4}{33} : \frac{1}{11}\right)^2 - \left(\frac{11}{9}\right)^1 - 1 = \\
& = \left(\frac{4}{3}\right)^2 - \frac{11}{9} - 1 = \\
& = \frac{16}{9} - \frac{11}{9} - 1 = \\
& = \frac{16-11-9}{9} = -\frac{4}{9}
\end{aligned}$$

Keywords

 Algebra, numeri relativi, relativi, numeri positivi, numeri negativi, valore assoluto, numeri reali, segno, Z, espressioni algebriche, esercizi con soluzioni, matematica

  Algebra, Z, signed numbers, integers, negative e non-negative numbers, real numbers, sign, exercises with solution, Algebraic Expressions solved, math

 Algebra, Z, nombre negativo, nombre positivo, signo, matemática

 Algèbre, Z, nombres relatifs, nombre négatifs, nombre positifs, nombres réels, mathématique

 Algebra, Z, Positive und Negative Zahlen, reellen Zahlen, Signum, Mathematik
