

Frazioni di frazioni e potenze con esponente negativo. Complete di soluzione guidata.
Signed numbers calculus.

1.
$$\frac{\left(\frac{7}{2} + \frac{1}{3}\right) \cdot \left(7 + \frac{2}{3}\right)^{-1}}{\left(1 + \frac{5}{4}\right) \cdot 5^{-1}}$$
 [10]
[soluzione](#)

2.
$$\frac{+\frac{1}{4}}{\left(-\frac{2}{3}\right)^{-1}}$$
 [-1]
[soluzione](#)

3.
$$\frac{\left(-\frac{3}{7}\right)^{-2}}{\left(-\frac{3}{14}\right)^{-1}}$$
 [-7]
[soluzione](#)

4.
$$\frac{\left(-\frac{7}{9}\right)^3 : \left(-\frac{7}{9}\right)^4}{\left(+\frac{14}{3}\right)^2 : \left(-\frac{7}{9}\right)^2}$$
 [-1]
[soluzione](#)

5.
$$1 - \frac{-4 \cdot \left[-\frac{2}{3} \cdot \left(-\frac{1}{4}\right)^{-1}\right]^{-1} + \frac{3}{2}}{-\frac{4}{3}}$$
 [1]
[soluzione](#)

6.
$$\frac{\left\{ \left[\left(-\frac{2}{3}\right)^{-5} : \left(-\frac{2}{3}\right)^{-3} \right] : \left[0,4 \cdot (0,4)^{-3} \right] \right\}^{-1} : \left[-\left(1 - \frac{5}{8}\right) \right]}{\left\{ \left[(1-5)^2 \cdot 4^{-2} - \frac{1}{2} \right]^3 \cdot \frac{1}{2^{-2}} + \frac{1}{2} \right\}^{-5} \cdot \left(\frac{1}{3} - 1\right)^{-2}}$$
 [-8]
[soluzione](#)

7.
$$1 - \frac{\frac{4}{2} - \left[(-1)^2 \cdot (-1)^3 : (-1)^4 + (-2)^4 : (-2)^3 \right] \cdot 3^{-1}}{3 + \frac{1}{2 - \frac{1}{3}}}$$
 [10]
[soluzione](#)

8.
$$\left\{ \frac{\left[\left(-\frac{3}{2}\right)^6 : \left(-\frac{3}{2}\right)^{-12} \right] \cdot \frac{2^{12}}{3^5}}{\left(\frac{27}{4}\right)^3 : \left(\frac{8}{81}\right)^{-1} : \left(\frac{2}{9}\right)^4} - 3 \right\}^3$$
 [-1]
[soluzione](#)

$$9. \quad \frac{(-2)^2 \cdot (-2)^3 : (-2)^4 : (-2)^{-1}}{[(-2) : (-2)^3]^{-1}} + \frac{[-(-2)^3]^{-1} \cdot (-2)^4}{(-2)^2 - (-2)} - [-(-2)^{-1}]^{-1} \cdot [(-2)^0]^3$$

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$$10. \quad \frac{[(-2)^2 - (-2)^{-1}] \cdot \left[-2 - \left(-\frac{5}{2}\right)^{-1}\right]}{\frac{3}{(-2)^2} \cdot (-2)^{-2} \cdot (-2)^3}$$

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$$11. \quad \frac{-3 \cdot \left[(-2)^{-2} - \frac{2}{3}\right] - \left(-\frac{1}{2}\right)^2 \cdot \left(-\frac{2}{3}\right)^{-2} \cdot \left(-\frac{3}{2}\right)^{-2}}{[-1 - (-2)^{-2}] \cdot \left(\frac{3}{2}\right)^{-2}} : (-2)^{-2}$$

[soluzione](#)

$$12. \quad \frac{\left(-\frac{1}{2}\right)^{-3} \cdot \left(\frac{1}{2} - 1\right)^4}{\left(-\frac{1}{4}\right)^{-2}}$$

[soluzione](#)

$$13. \quad 1 + \frac{\left(\frac{4}{5}\right)^{-2} - \left(\frac{4}{3}\right)^{-2}}{\left(\frac{3}{2}\right)^{-2}} - 2^{-1}$$

$\left[\frac{17}{18}\right]$

Esercizi e soluzioni

$$\begin{aligned}
 & \frac{\left(\frac{7}{2} + \frac{1}{3}\right) \cdot \left(7 + \frac{2}{3}\right)^{-1}}{\left(1 + \frac{5}{4}\right) \cdot 5^{-1}} = \\
 & = \frac{\frac{21+2}{6} \cdot \left(\frac{21+2}{3}\right)^{-1}}{\frac{4+5}{4} \cdot \frac{1}{5}} = \\
 & = \frac{\frac{23}{6} \cdot \left(\frac{23}{3}\right)^{-1}}{\frac{9}{4} \cdot \frac{1}{5}} = \\
 & = \frac{\frac{23}{6} \cdot \frac{3}{23}}{\frac{9}{4} \cdot \frac{1}{5}} = \\
 & = \frac{1}{2} \cdot \frac{9}{20} = \\
 & = \frac{1}{2} \cdot \frac{20}{9} = \frac{10}{9}
 \end{aligned}$$

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

$$\begin{aligned}\frac{\left(-\frac{3}{7}\right)^{-2}}{\left(-\frac{3}{14}\right)^{-1}} &= \\ &= \frac{\left(-\frac{7}{3}\right)^2}{\left(-\frac{14}{3}\right)^1} = \\ &= \left(+\frac{49}{9}\right) \cdot \left(-\frac{3}{14}\right) = -\frac{7}{6}\end{aligned}$$

$$\begin{aligned}\frac{\left(-\frac{7}{9}\right)^3 : \left(-\frac{7}{9}\right)^4}{\left(+\frac{14}{3}\right)^2 : \left(-\frac{7}{9}\right)^2} &= \\ &= \frac{\left(-\frac{7}{9}\right)^{3-4}}{\left[+\frac{14}{3} : \left(-\frac{7}{9}\right)\right]^2} = \\ &= \frac{\left(-\frac{7}{9}\right)^{-1}}{\left[+\frac{14}{3} \cdot \left(-\frac{9}{7}\right)\right]^2} = \\ &= \frac{\left(-\frac{7}{9}\right)^{-1}}{[-6]^2} = \\ &= \left(-\frac{9}{7}\right) \cdot \left(+\frac{1}{36}\right) = -\frac{1}{28}\end{aligned}$$

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

$$\begin{aligned}
 & \frac{\left\{ \left[\left(-\frac{2}{3} \right)^{-5} : \left(-\frac{2}{3} \right)^{-3} \right] : \left[0, \bar{4} \cdot (0, \bar{4})^{-3} \right] \right\}^{-1} : \left[-\left(1 - \frac{5}{8} \right) \right]}{\left\{ \left[(1-5)^2 \cdot 4^{-2} - \frac{1}{2} \right]^3 \cdot \frac{1}{2^{-2}} + \frac{1}{2} \right\}^{-5} \cdot \left(\frac{1}{3} - 1 \right)^{-2}} = \\
 & = \frac{\left\{ \left[\left(-\frac{2}{3} \right)^{-5} : \left(-\frac{2}{3} \right)^{-3} \right] : \left[0, \bar{4} \cdot (0, \bar{4})^{-3} \right] \right\}^{-1} : \left[-\left(1 - \frac{5}{8} \right) \right]}{\left\{ \left[(1-5)^2 \cdot 4^{-2} - \frac{1}{2} \right]^3 \cdot \frac{1}{2^{-2}} + \frac{1}{2} \right\}^{-5} \cdot \left(\frac{1}{3} - 1 \right)^{-2}} = \\
 & = \frac{\left\{ \frac{4}{9} \right\}^{-1} : \left[-\frac{3}{8} \right]}{\left\{ \left[16 \cdot \frac{1}{16} - \frac{1}{2} \right]^3 \cdot \frac{4}{1} + \frac{1}{2} \right\}^{-5} \cdot \left(\frac{3}{2} \right)^2} = \\
 & = \frac{\left\{ \frac{3}{4} \right\} \cdot \left[-\frac{8^2}{3} \right]}{\left\{ \frac{1}{2} \cdot \frac{4}{1} + \frac{1}{2} \right\}^{-5} \cdot \left(\frac{3}{2} \right)^2} = \\
 & = \frac{-\frac{6}{9}}{\frac{4}{1}} = \\
 & = -\frac{2}{3} \cdot \frac{4}{9} = -\frac{8}{27}
 \end{aligned}$$

$$\begin{aligned}
 & \left\{ \frac{\left[\left(-\frac{3}{2} \right)^6 : \left(-\frac{3}{2} \right)^{-12} \right] \cdot \frac{2^{12}}{3^5}}{\left(\frac{27}{4} \right)^3 : \left(\frac{8}{81} \right)^{-1} : \left(\frac{2}{9} \right)^4} - 3 \right\}^3 = \\
 & = \left\{ \frac{\left[\left(-\frac{3}{2} \right)^{6-(-12)} \right] \cdot \frac{2^{12}}{3^5}}{\left(\frac{3^3}{2^2} \right)^3 : \left(\frac{2^3}{3^4} \right)^{-1} : \left(\frac{2}{3^2} \right)^4} - 3 \right\}^3 = \\
 & = \left\{ \frac{\left[\left(-\frac{3}{2} \right)^{18} \right] \cdot \frac{2^{12}}{3^5}}{\frac{3^9}{2^6} : \left(\frac{3^4}{2^3} \right) : \left(\frac{2^4}{3^8} \right)} - 3 \right\}^3 = \\
 & = \left\{ \frac{\frac{3^{18}}{2^{18}} \cdot \frac{2^{12}}{3^5}}{\frac{3^9}{2^6} \cdot \frac{2^3}{3^4} \cdot \frac{3^8}{2^4}} - 3 \right\}^3 = \left\{ \frac{\frac{3^{13}}{2^6}}{\frac{3^{13}}{2^7}} - 3 \right\}^3 = \left\{ \frac{3^{13}}{2^6} \cdot \frac{2^7}{3^{13}} - 3 \right\}^3 = \{2 - 3\}^3 = \{-1\}^3 = -1
 \end{aligned}$$

$$\begin{aligned}
 & \frac{4}{1 - \frac{2}{3 + \frac{1}{2 - \frac{1}{3}}}} - [(-1)^2 \cdot (-1)^3 : (-1)^4 + (-2)^4 : (-2)^3] \cdot 3^{-1} = \\
 & = \frac{4}{1 - \frac{2}{3 + \frac{1}{\frac{5}{3}}}} - [(-1)^{2+3-4} + (-2)^{4-3}] \cdot 3^{-1} = \\
 & = \frac{4}{1 - \frac{2}{3 + \frac{3}{5}}} - [(-1)^1 + (-2)^1] \cdot \frac{1}{3} = \\
 & = \frac{4}{1 - \frac{2}{\frac{18}{5}}} - [-1 - 2] \cdot \frac{1}{3} = \frac{4}{1 - \frac{5}{9}} + 3 \cdot \frac{1}{3} = \frac{4}{\frac{4}{9}} + 1 = 9 + 1 = 10
 \end{aligned}$$

$$\begin{aligned}
 & \frac{(-2)^2 \cdot (-2)^3 : (-2)^4 : (-2)^{-1}}{[(-2) : (-2)^3]^{-1}} + \frac{[-(-2)^3]^{-1} \cdot (-2)^4}{(-2)^2 - (-2)} - [-(2)^{-1}]^{-1} \cdot [(-2)^0]^3 = \\
 & = \frac{(-2)^{2+3-4-(-1)}}{[(-2)^{1-3}]^{-1}} + \frac{[-(-8)]^{-1} \cdot 16}{4+2} - \left[-\left(-\frac{1}{2}\right)\right]^{-1} \cdot 1 = \\
 & = \frac{(-2)^2}{[(-2)^{-2}]^{-1}} + \frac{[+8]^{-1} \cdot 16}{6} - \left[+\frac{1}{2}\right]^{-1} = \\
 & = \frac{4}{(-2)^{-2(-1)}} + \frac{\frac{1}{8} \cdot 16}{6} - 2 = \\
 & = \frac{4}{(-2)^2} + \frac{2}{6} - 2 = \\
 & = \frac{4^1}{4_1} + \frac{1}{3} - 2 = \frac{3+1-6}{3} = -\frac{2}{3}
 \end{aligned}$$

$$\begin{aligned}
 & \frac{[(-2)^2 - (-2)^{-1}] \cdot \left[-2 - \left(-\frac{5}{2}\right)^{-1}\right]}{\frac{3}{(-2)^2} \cdot (-2)^{-2} \cdot (-2)^3} = \\
 & = \frac{\left[4 - \left(-\frac{1}{2}\right)\right] \cdot \left[-2 - \left(-\frac{2}{5}\right)\right]}{\frac{3}{4} \cdot \left(-\frac{1}{2}\right)^2 \cdot (-8)} = \\
 & = \frac{\left[4 + \frac{1}{2}\right] \cdot \left[-2 + \frac{2}{5}\right]}{\frac{3}{4} \cdot \frac{1}{4} \cdot (-8)} = \\
 & = \frac{\frac{9}{2} \cdot \left[-\frac{8}{5}\right]}{\frac{3}{4} \cdot \frac{1}{4} \cdot (-8)} = \\
 & = \frac{+\frac{36}{5}}{-\frac{3}{2}} = +\frac{36}{5} \cdot \left(-\frac{2}{3}\right) = -\frac{24}{5}
 \end{aligned}$$

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

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

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

$$= \frac{-3 \cdot \left[\frac{3-8}{12} \right] - \frac{1}{4} \cdot \frac{4}{9}}{\left[-1 - \frac{1}{4} \right] \cdot \frac{4}{9}} \cdot \frac{4}{1} =$$


$$= \frac{-3 \cdot \left[-\frac{5}{12} \right] - \frac{1}{4} \cdot \frac{4}{9}}{\left[-\frac{5}{4} \right] \cdot \frac{4}{9}} \cdot 4 =$$



$$= \frac{\frac{5}{4} - \frac{1}{4}}{-\frac{5}{9}} \cdot 4 =$$


$$= \frac{5-1}{-\frac{4}{9}} \cdot 4 = \frac{4}{-\frac{4}{9}} \cdot \left(-\frac{9}{5} \right) \cdot \frac{4}{1} = -\frac{36}{5}$$


$$\begin{aligned} & \frac{\left(-\frac{1}{2}\right)^{-3} \cdot \left(\frac{1}{2} - 1\right)^4}{\left(-\frac{1}{4}\right)^{-2}} = \\ & = \frac{\left(-\frac{1}{2}\right)^{-3} \cdot \left(-\frac{1}{2}\right)^4}{(-4)^2} = \\ & = \left(-\frac{1}{2}\right)^{-3+4} : 16 = \\ & = -\frac{1}{2} \cdot \frac{1}{16} = -\frac{1}{32} \end{aligned}$$


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