

Espressioni con le quattro operazioni. Livello intermedio. DUE

Completi di soluzione guidata.

Evaluating Expressions Involving Fractions – With solutions

1. $\left(\frac{3}{5} + \frac{2}{3}\right) + \left(\frac{25}{8} \cdot \frac{1}{9} + \frac{5}{12}\right) : \left(\frac{5}{4} \cdot \frac{5}{2} \cdot \frac{1}{3}\right)$ 2
[soluzione](#)
2. $\left(1 - \frac{4}{5}\right) - \frac{1}{3} \cdot \left[\frac{3}{2} - \left(\frac{4}{5} : \frac{8}{3} + \frac{3}{4}\right)\right] : \left(5 - \frac{1}{2}\right) + \frac{9}{10} : \left(4 - \frac{2}{5}\right)$ 5/12
[soluzione](#)
3. $\left(2 - \frac{1}{2}\right) - \left\{\left[\frac{6}{2} \cdot \left(\frac{11}{6} - \frac{7}{4}\right)\right] : \left[1 - \left(\frac{5}{2} - \frac{3}{4}\right) : \frac{21}{5}\right]\right\} : \frac{5}{7}$ 9/10
[soluzione](#)
4. $\left(\frac{1}{4} \cdot \frac{5}{2} - \frac{3}{2} \cdot \frac{1}{4}\right) \cdot \left(\frac{6}{3} \cdot \frac{5}{4} + 1\right) : \left(\frac{6}{10} \cdot \frac{5}{2} + 1\right)$ 7/20
[soluzione](#)
5. $\left[\left(\frac{3}{2} - \frac{1}{3}\right) : \left(2 - \frac{1}{4}\right) - \left(\frac{1}{3} - \frac{1}{4}\right)\right] : \left(\frac{2}{7} - \frac{1}{7}\right)$ 49/12
[soluzione](#)
6. $\left\{\left[\left(\frac{6}{5} - \frac{1}{10}\right) : \left(2 + \frac{1}{5}\right)\right] : \left[\left(\frac{2}{3} : \frac{5}{6} + \frac{1}{10}\right) : \frac{3}{25}\right]\right\} : \frac{7}{30}$ 2/7
[soluzione](#)
7. $\left(1 - \frac{1}{5}\right) - \left(1 - \frac{2}{3}\right) \cdot \left[\left(1 + \frac{1}{2}\right) - \left(\frac{4}{5} : \frac{8}{3} + \frac{3}{4}\right)\right] \cdot \frac{9}{2} + \left(1 - \frac{1}{10}\right) : \left(4 - \frac{2}{5}\right)$ 3/8
[soluzione](#)
8. $\left\{\left(1 - \frac{1}{4}\right) \cdot \left[\frac{7}{3} : \frac{7}{6} + \frac{9}{3} - \frac{3}{2} : \left(1 - \frac{1}{2}\right)\right] - \frac{1}{6}\right\} : \frac{20}{9}$ 3/5
[soluzione](#)
9. $\left[\left(1 - \frac{2}{3}\right) : \frac{5}{6}\right] \cdot \left[\left(1 - \frac{11}{13}\right) \cdot \left(\frac{3}{4} + \frac{5}{2}\right)\right] : \left[\left(1 + \frac{1}{5}\right) \cdot \left(\frac{5}{4} - \frac{7}{6}\right)\right]$ 2
[soluzione](#)
10. $\left[\left(1 - \frac{1}{2}\right) + \left(\frac{5}{3} - \frac{2}{5}\right) : \frac{19}{3}\right] \cdot \left\{1 : \left[\left(1 + \frac{7}{4}\right)^2 : \left(2 + \frac{3}{4}\right)\right] : \frac{4}{11}\right\}$ 7/10
[soluzione](#)
11. $\left(1 + \frac{5}{4}\right) \cdot \left[1 + \left(1 - \frac{1}{2}\right) \cdot \left(1 - \frac{1}{2}\right)\right] : \left[\frac{1}{2} + 1 : \left(1 + \frac{1}{3}\right)\right]$ 9/4
[soluzione](#)
12. $\left[\left(\frac{17}{45} - \frac{1}{10}\right) \cdot \frac{2}{5} + \frac{11}{12} : \frac{11}{2}\right] : \left(1 + \frac{2}{3} - \frac{11}{9}\right)$ 5/8
[soluzione](#)

13. $\left[\left(\frac{3}{8} + \frac{2}{3}\right) : \left(\frac{1}{4} + \frac{5}{6} - 1\right) - \left(3 - \frac{1}{2}\right)\right] : \left(1 - \frac{3}{5}\right) \cdot \frac{1}{3}$ 25/3
[soluzione](#)
14. $\left[\frac{1}{3} \cdot \left(\frac{1}{3} + \frac{1}{2}\right) : 5 + \frac{1}{9}\right] \cdot \frac{1}{3} + \frac{5}{6} - \left(1 - \frac{2}{3}\right) \cdot \frac{1}{3}$ 7/9
[soluzione](#)
15. $\left[\frac{13}{5} : \left(2 + \frac{5}{4}\right) - \left(1 - \frac{1}{2}\right)\right] : \frac{4}{5} + \left(1 - \frac{1}{6}\right) - \left(1 - \frac{2}{3}\right)$ 7/8
[soluzione](#)
16. $\left\{\left[\left(\frac{4}{5} - \frac{1}{6}\right) : \left(\frac{19}{6} \cdot \frac{12}{3}\right)\right] : \frac{3}{10} + 1\right\} : \frac{7}{6} - \frac{1}{3}$ 2/3
[soluzione](#)
17. $\left[\left(1 - \frac{2}{3}\right) \cdot \frac{5}{6} \cdot \left(1 - \frac{2}{3}\right) + \frac{1}{3} : 3\right] \cdot \frac{1}{3} + \frac{5}{6} - \left(1 - \frac{8}{9}\right)$ 7/9
[soluzione](#)
18. $\left[\left(1 - \frac{3}{4}\right) : \frac{1}{8}\right] \cdot \left[\left(1 + \frac{1}{2}\right) - \frac{3}{4} : \left(1 - \frac{1}{4}\right)\right]$ 1
[soluzione](#)
19. $\left\{\left[\left(1 + \frac{1}{2} : 2 - \frac{1}{2}\right) + \left(\frac{1}{3} : \frac{1}{3} + \frac{1}{2} \cdot \frac{1}{3}\right)\right] - \left(1 : \frac{3}{5} - \frac{1}{2} + 1\right)\right\} : \frac{3}{4}$ 1
[soluzione](#)
20. $\left[\frac{1}{2} - \left(1 - \frac{1}{3}\right) : \frac{5}{6}\right] \cdot \left[\left(1 + \frac{3}{4}\right) - \left(1 - \frac{3}{4}\right) : \left(1 + \frac{3}{4}\right) - 1\right] : \frac{17}{14}$ 3/20
[soluzione](#)
21. $\left[\left(1 + \frac{1}{2}\right) + \left(1 - \frac{1}{3}\right) : \left(1 - \frac{2}{3}\right)\right] \cdot \left[\left(1 + \frac{1}{5}\right) : \left(1 - \frac{2}{6}\right) - \left(1 - \frac{1}{4}\right) : \left(1 + \frac{1}{4}\right)\right] : \left(1 + \frac{1}{6}\right)$ 18/5
[soluzione](#)
22. $\left[\left(\frac{5}{9} - \frac{1}{6}\right) \cdot \frac{45}{4} - \frac{7}{4} \cdot \frac{7}{4}\right] \cdot \left[\frac{11}{21} + \frac{20}{9} \cdot \left(\frac{6}{7} - \frac{9}{28}\right)\right]$ 9/4
[soluzione](#)
23. $\left\{\left[\frac{4}{7} + \frac{16}{15} \cdot \left(\frac{5}{56} + \frac{1}{14} + \frac{1}{4}\right)\right] \cdot \frac{7}{4} - \frac{5}{12}\right\} \cdot \frac{36}{13} - \frac{9}{4} \cdot \left(1 + \frac{1}{3}\right)$ 0
[soluzione](#)

Soluzioni

$$\left(\frac{3}{5} + \frac{2}{3}\right) + \left(\frac{25}{8} \cdot \frac{1}{9} + \frac{5}{12}\right) : \left(\frac{5}{4} \cdot \frac{5}{2} \cdot \frac{1}{3}\right) =$$

Eseguo prima le moltiplicazioni nelle parentesi tonde, semplificando se possibile in croce.

$$\left(\frac{3}{5} + \frac{2}{3}\right) + \left(\frac{25}{72} + \frac{5}{12}\right) : \frac{25}{24} =$$

Eseguo prima le addizioni nella parentesi rotonde, ricercando il minimo comune multiplo dei denominatori (m.c.m. (5, 3) = 15 e m.c.m.(72, 12) = 72).

$$= \left(\frac{9 + 10}{15}\right) + \left(\frac{25}{72} + \frac{5}{12}\right) : \frac{25}{24} =$$

$$= \frac{19}{15} + \left(\frac{25 + 30}{72}\right) \cdot \frac{24}{25} =$$

$$= \frac{19}{15} + \frac{55}{72} \cdot \frac{24}{25} =$$

Eseguo la moltiplicazione, semplificando in croce per 5 (il 25 il 55) e per 24 (24 e 72).

$$= \frac{19}{15} + \frac{11}{15} =$$

$$= \frac{19 + 11}{15} = \frac{30}{15}$$

La frazione 30/15 è riducibile (M.C.D.(30, 15) = 15).

$$= \frac{30}{15} = 2$$

$$\left(1 - \frac{4}{5}\right) - \frac{1}{3} \cdot \left[\frac{3}{2} - \left(\frac{4}{5} : \frac{8}{3} + \frac{3}{4}\right)\right] : \left(5 - \frac{1}{2}\right) + \frac{9}{10} : \left(4 - \frac{2}{5}\right) =$$

Eseguo prima le addizioni nella parentesi rotonde e trasformo la divisione in una moltiplicazione (... per il reciproco).

$$= \left(\frac{5-4}{5}\right) - \frac{1}{3} \cdot \left[\frac{3}{2} - \left(\frac{4}{5} \cdot \frac{3}{8} + \frac{3}{4}\right)\right] : \left(\frac{10-1}{2}\right) + \frac{9}{10} : \left(\frac{20-2}{5}\right) =$$

Eseguo i calcoli delle addizioni e sottrazione e la moltiplicazione.

$$= \frac{1}{5} - \frac{1}{3} \cdot \left[\frac{3}{2} - \left(\frac{3}{10} + \frac{3}{4}\right)\right] : \frac{9}{2} + \frac{9}{10} : \frac{18}{5} =$$

Eseguo prima l'addizione nella parentesi rotonda, ricercando il minimo comune multiplo dei denominatori (m.c.m. (10, 4) = 20).

$$= \frac{1}{5} - \frac{1}{3} \cdot \left[\frac{3}{2} - \left(\frac{6+15}{20}\right)\right] \cdot \frac{2}{9} + \frac{9}{10} \cdot \frac{5}{18} =$$

Semplifico la moltiplicazione in croce (9 e 18 diventano 1 e 2; 5 e 10 diventano 1 e 2).

$$\begin{aligned} &= \frac{1}{5} - \frac{1}{3} \cdot \left[\frac{3}{2} - \frac{21}{20}\right] \cdot \frac{2}{9} + \frac{1}{4} = \\ &= \frac{1}{5} - \frac{1}{3} \cdot \left[\frac{30-21}{20}\right] \cdot \frac{2}{9} + \frac{1}{4} = \\ &= \frac{1}{5} - \frac{1}{3} \cdot \frac{9^1}{20} \cdot \frac{2}{9_1} + \frac{1}{4} = \\ &= \frac{1}{5} - \frac{1}{30} + \frac{1}{4} = \\ &= \frac{12-2+15}{60} = \frac{25}{60} = \frac{5}{12} \end{aligned}$$

$$\begin{aligned}
 & \left(2 - \frac{1}{2}\right) - \left\{ \left[\frac{6}{2} \cdot \left(\frac{11}{6} - \frac{7}{4} \right) \right] : \left[1 - \left(\frac{5}{2} - \frac{3}{4} \right) : \frac{21}{5} \right] \right\} : \frac{5}{7} = \\
 & = \left(\frac{4-1}{2} \right) - \left\{ \left[3 \cdot \left(\frac{22-21}{12} \right) \right] : \left[1 - \left(\frac{10-3}{4} \right) \cdot \frac{5}{21} \right] \right\} \cdot \frac{7}{5} = \\
 & = \frac{3}{2} - \left\{ \left[3 \cdot \frac{1}{12} \right] : \left[1 - \frac{7}{4} \cdot \frac{5}{21} \right] \right\} \cdot \frac{7}{5} = \\
 & = \frac{3}{2} - \left\{ \frac{1}{4} : \left[1 - \frac{5}{12} \right] \right\} \cdot \frac{7}{5} = \\
 & = \frac{3}{2} - \left\{ \frac{1}{4} : \frac{12-5}{12} \right\} \cdot \frac{7}{5} = \\
 & = \frac{3}{2} - \left\{ \frac{1}{4} \cdot \frac{12}{7} \right\} \cdot \frac{7}{5} = \\
 & = \frac{3}{2} - \frac{3}{7} \cdot \frac{7}{5} = \\
 & = \frac{3}{2} - \frac{3}{5} = \\
 & = \frac{15-6}{10} = \frac{9}{10}
 \end{aligned}$$

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

Passo dalla divisione alla moltiplicazione (per reciproco).

$$\begin{aligned} & = \frac{2}{8} \cdot \frac{7}{2} \cdot \frac{2}{5} = \\ & = \frac{1}{4} \cdot \frac{7}{1} \cdot \frac{1}{5} = \frac{7}{20} \end{aligned}$$

$$\begin{aligned}
 & \left\{ \left[\left(\frac{6}{5} - \frac{1}{10} \right) : \left(2 + \frac{1}{5} \right) \right] : \left[\left(\frac{2}{3} : \frac{5}{6} + \frac{1}{10} \right) : \frac{3}{25} \right] \right\} : \frac{7}{30} = \\
 & = \left\{ \left[\left(\frac{12-1}{10} \right) : \left(\frac{10+1}{5} \right) \right] : \left[\left(\frac{2}{3} \cdot \frac{6}{5} + \frac{1}{10} \right) \cdot \frac{25}{3} \right] \right\} \cdot \frac{30}{7} = \\
 & = \left\{ \left[\frac{11}{10} : \frac{11}{5} \right] : \left[\left(\frac{4}{5} + \frac{1}{10} \right) \cdot \frac{25}{3} \right] \right\} \cdot \frac{30}{7} = \\
 & = \left\{ \left[\frac{11}{10} \cdot \frac{5}{11} \right] : \left[\left(\frac{8+1}{10} \right) \cdot \frac{25}{3} \right] \right\} \cdot \frac{30}{7} = \\
 & = \left\{ \frac{1}{2} : \left[\frac{9}{10} \cdot \frac{25}{3} \right] \right\} \cdot \frac{30}{7} = \\
 & = \left\{ \frac{1}{2} : \frac{15}{2} \right\} \cdot \frac{30}{7} = \\
 & = \left\{ \frac{1}{2} \cdot \frac{2}{15} \right\} \cdot \frac{30}{7} = \\
 & = \frac{1}{15} \cdot \frac{30}{7} = \frac{2}{7}
 \end{aligned}$$

$$\begin{aligned}
 & \left(1 - \frac{1}{5}\right) - \left(1 - \frac{2}{3}\right) \cdot \left[\left(1 + \frac{1}{2}\right) - \left(\frac{4}{5} : \frac{8}{3} + \frac{3}{4}\right)\right] \cdot \frac{9}{2} + \left(1 - \frac{1}{10}\right) : \left(4 - \frac{2}{5}\right) = \\
 & = \left(\frac{5-1}{5}\right) - \left(\frac{3-2}{3}\right) \cdot \left[\left(\frac{2+1}{2}\right) - \left(\frac{4}{5} \cdot \frac{3}{8} + \frac{3}{4}\right)\right] \cdot \frac{9}{2} + \left(\frac{10-1}{10}\right) : \left(\frac{20-2}{5}\right) = \\
 & = \frac{4}{5} - \frac{1}{3} \cdot \left[\frac{3}{2} - \left(\frac{3}{10} + \frac{3}{4}\right)\right] \cdot \frac{9}{2} + \frac{9}{10} : \frac{18}{5} = \\
 & = \frac{4}{5} - \frac{1}{3} \cdot \left[\frac{3}{2} - \left(\frac{6+15}{20}\right)\right] \cdot \frac{9}{2} + \frac{9}{10} \cdot \frac{5}{18} = \\
 & = \frac{4}{5} - \frac{1}{3} \cdot \left[\frac{3}{2} - \frac{21}{20}\right] \cdot \frac{9}{2} + \frac{1}{4} = \\
 & = \frac{4}{5} - \frac{1}{3} \cdot \left[\frac{30-21}{20}\right] \cdot \frac{9}{2} + \frac{1}{4} = \\
 & = \frac{4}{5} - \frac{1}{3} \cdot \frac{9}{20} \cdot \frac{9}{2} + \frac{1}{4} = \\
 & = \frac{4}{5} - \frac{27}{40} + \frac{1}{4} = \\
 & = \frac{32-27+10}{40} = \\
 & = \frac{15}{40} = \frac{3}{8}
 \end{aligned}$$

$$\begin{aligned}
 & \left\{ \left(1 - \frac{1}{4} \right) \cdot \left[\frac{7}{3} \cdot \frac{7}{6} + \frac{9}{3} - \frac{3}{2} \cdot \left(1 - \frac{1}{2} \right) \right] - \frac{1}{6} \right\} \cdot \frac{20}{9} = \\
 & = \left\{ \frac{3}{4} \cdot \left[\frac{7}{3} \cdot \frac{6}{7} + 3 - \frac{3}{2} \cdot \frac{2}{1} \right] - \frac{1}{6} \right\} \cdot \frac{9}{20} = \\
 & = \left\{ \frac{3}{4} \cdot [2 + 3 - 3] - \frac{1}{6} \right\} \cdot \frac{9}{20} = \\
 & = \left\{ \frac{3}{4} \cdot 2 - \frac{1}{6} \right\} \cdot \frac{9}{20} = \\
 & = \left\{ \frac{3}{2} - \frac{1}{6} \right\} \cdot \frac{9}{20} = \\
 & = \frac{9-1}{6} \cdot \frac{9}{20} = \\
 & = \frac{8}{2} \cdot \frac{3}{20} = \\
 & = \frac{2}{2} \cdot \frac{3}{5} = \frac{3}{5}
 \end{aligned}$$

$$\begin{aligned}
 & \left[\left(1 - \frac{2}{3} \right) : \frac{5}{6} \right] \cdot \left[\left(1 - \frac{11}{13} \right) \cdot \left(\frac{3}{4} + \frac{5}{2} \right) \right] : \left[\left(1 + \frac{1}{5} \right) \cdot \left(\frac{5}{4} - \frac{7}{6} \right) \right] = \\
 & = \left[\left(\frac{3-2}{3} \right) : \frac{5}{6} \right] \cdot \left[\left(\frac{13-11}{13} \right) \cdot \left(\frac{3+10}{4} \right) \right] : \left[\left(\frac{5+1}{5} \right) \cdot \left(\frac{15-14}{12} \right) \right] = \\
 & = \left[\frac{1}{3} : \frac{5}{6} \right] \cdot \left[\frac{2}{13} \cdot \frac{13}{4} \right] : \left[\frac{6}{5} \cdot \frac{1}{12} \right] = \\
 & = \left[\frac{1}{\cancel{3}_1} : \frac{5}{\cancel{6}_2} \right] \cdot \frac{1}{2} : \left[\frac{1}{5} \cdot \frac{1}{2} \right] = \\
 & = \frac{2}{5} \cdot \frac{1}{2} : \frac{1}{10} = \\
 & = \frac{1}{5} \cdot \frac{10}{1} = 2
 \end{aligned}$$

$$\begin{aligned}
 & \left[\left(1 - \frac{1}{2} \right) + \left(\frac{5}{3} - \frac{2}{5} \right) : \frac{19}{3} \right] \cdot \left\{ 1 : \left[\left(1 + \frac{7}{4} \right)^2 : \left(2 + \frac{3}{4} \right) \right] : \frac{4}{11} \right\} = \\
 & = \left[\frac{1}{2} + \left(\frac{25 - 6}{15} \right) \cdot \frac{3}{19} \right] \cdot \left\{ 1 : \left[\left(\frac{11}{4} \right)^2 : \left(\frac{11}{4} \right) \right] \cdot \frac{11}{4} \right\} = \\
 & = \left[\frac{1}{2} + \frac{19}{15} \cdot \frac{3}{19} \right] \cdot \left\{ 1 : \left[\left(\frac{11}{4} \right)^{2-1} \right] \cdot \frac{11}{4} \right\} = \\
 & = \left[\frac{1}{2} + \frac{1}{5} \right] \cdot \left\{ 1 : \frac{11}{4} \cdot \frac{11}{4} \right\} = \\
 & = \left[\frac{7}{10} \right] \cdot \left\{ 1 \cdot \frac{4}{11} \cdot \frac{11}{4} \right\} = \frac{7}{10}
 \end{aligned}$$

NB

Le frazioni $\frac{4}{11}$ e $\frac{11}{4}$ sono una la reciproca dell'altra e, quindi, il loro prodotto è sempre 1.

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

NB

Le frazioni $\frac{5}{4}$ e $\frac{4}{5}$ sono una la reciproca dell'altra e, quindi, il loro prodotto è sempre 1.

$$\begin{aligned}
 & \left[\left(\frac{17}{45} - \frac{1}{10} \right) \cdot \frac{2}{5} + \frac{11}{12} : \frac{11}{2} \right] : \left(1 + \frac{2}{3} - \frac{11}{9} \right) = \\
 & = \left[\left(\frac{34 - 9}{90} \right) \cdot \frac{2}{5} + \frac{1}{6} \right] : \left(\frac{9 + 6 - 11}{9} \right) = \\
 & = \left[\frac{25}{90} \cdot \frac{2}{5} + \frac{1}{6} \right] : \frac{4}{9} = \\
 & = \left[\frac{5}{45} + \frac{1}{6} \right] \cdot \frac{9}{4} = \\
 & = \left[\frac{1}{9} + \frac{1}{6} \right] \cdot \frac{9}{4} = \\
 & = \frac{2 + 3}{18} \cdot \frac{9}{4} = \\
 & = \frac{5}{18} \cdot \frac{9}{4} = \\
 & = \frac{5}{2} \cdot \frac{1}{4} = \frac{5}{8}
 \end{aligned}$$

$$\begin{aligned}
 & \left[\left(\frac{3}{8} + \frac{2}{3} \right) : \left(\frac{1}{4} + \frac{5}{6} - 1 \right) - \left(3 - \frac{1}{2} \right) \right] : \left(1 - \frac{3}{5} \right) \cdot \frac{1}{3} = \\
 & = \left[\left(\frac{9 + 16}{24} \right) : \left(\frac{3 + 10 - 12}{12} \right) - \left(\frac{6 - 1}{2} \right) \right] : \left(\frac{5 - 3}{5} \right) \cdot \frac{1}{3} = \\
 & = \left[\frac{25}{24} : \frac{1}{12} - \frac{5}{2} \right] : \frac{2}{5} \cdot \frac{1}{3} = \\
 & = \left[\frac{25}{2} - \frac{5}{2} \right] \cdot \frac{5}{2} \cdot \frac{1}{3} = \\
 & = \frac{20}{2} \cdot \frac{5}{2} \cdot \frac{1}{3} = \frac{25}{3}
 \end{aligned}$$

$$\begin{aligned}
 & \left[\frac{1}{3} \cdot \left(\frac{1}{3} + \frac{1}{2} \right) : 5 + \frac{1}{9} \right] \cdot \frac{1}{3} + \frac{5}{6} - \left(1 - \frac{2}{3} \right) \cdot \frac{1}{3} = \\
 & = \left[\frac{1}{3} \cdot \left(\frac{2+3}{6} \right) \cdot \frac{1}{5} + \frac{1}{9} \right] \cdot \frac{1}{3} + \frac{5}{6} - \left(\frac{3-2}{3} \right) \cdot \frac{1}{3} = \\
 & = \left[\frac{1}{3} \cdot \frac{5}{6} \cdot \frac{1}{3} + \frac{1}{9} \right] \cdot \frac{1}{3} + \frac{5}{6} - \frac{1}{3} \cdot \frac{1}{3} = \\
 & = \left[\frac{1}{18} + \frac{1}{9} \right] \cdot \frac{1}{3} + \frac{5}{6} - \frac{1}{9} = \\
 & = \left[\frac{1+2}{18} \right] \cdot \frac{1}{3} + \frac{5}{6} - \frac{1}{9} = \\
 & = \frac{3}{18} \cdot \frac{1}{3} + \frac{5}{6} - \frac{1}{9} = \\
 & = \frac{1}{18} + \frac{5}{6} - \frac{1}{9} = \\
 & = \frac{1+15-2}{18} = \\
 & = \frac{14}{18} = \frac{7}{9}
 \end{aligned}$$

$$\begin{aligned}
 & \left[\frac{13}{5} : \left(2 + \frac{5}{4} \right) - \left(1 - \frac{1}{2} \right) \right] : \frac{4}{5} + \left(1 - \frac{1}{6} \right) - \left(1 - \frac{2}{3} \right) = \\
 & = \left[\frac{13}{4} : \left(\frac{8+5}{4} \right) - \left(\frac{2-1}{2} \right) \right] : \frac{4}{5} + \left(\frac{6-1}{6} \right) - \left(\frac{3-2}{3} \right) = \\
 & = \left[\frac{13}{5} : \frac{13}{4} - \frac{1}{2} \right] : \frac{4}{5} + \frac{5}{6} - \frac{1}{3} = \\
 & = \left[\frac{13}{5} \cdot \frac{4}{13} - \frac{1}{2} \right] \cdot \frac{5}{4} + \frac{5}{6} - \frac{1}{3} = \\
 & = \left[\frac{4}{5} - \frac{1}{2} \right] \cdot \frac{5}{4} + \frac{5}{6} - \frac{1}{3} = \\
 & = \frac{8-5}{10} \cdot \frac{5}{4} + \frac{5}{6} - \frac{1}{3} = \\
 & = \frac{3}{8} + \frac{5}{6} - \frac{1}{3} = \\
 & = \frac{9+20-8}{24} = \frac{21}{24} = \frac{7}{8}
 \end{aligned}$$

$$\begin{aligned}
 & \left\{ \left[\left(\frac{4}{5} - \frac{1}{6} \right) : \left(\frac{19}{6} \cdot \frac{12}{3} \right) \right] : \frac{3}{10} + 1 \right\} : \frac{7}{6} - \frac{1}{3} = \\
 & = \left\{ \left[\frac{24 - 5}{30} : \frac{38}{3} \right] \cdot \frac{10}{3} + 1 \right\} : \frac{7}{6} - \frac{1}{3} = \\
 & = \left\{ \left[\frac{19 \cdot 3}{30 \cdot 38} \right] \cdot \frac{10}{3} + 1 \right\} : \frac{7}{6} - \frac{1}{3} = \\
 & = \left\{ \frac{1}{20} \cdot \frac{10}{3} + 1 \right\} : \frac{7}{6} - \frac{1}{3} = \\
 & = \left\{ \frac{1}{6} + 1 \right\} \cdot \frac{6}{7} - \frac{1}{3} = \\
 & = \left\{ \frac{1 + 6}{6} \right\} \cdot \frac{6}{7} - \frac{1}{3} = \\
 & = \frac{7}{6} \cdot \frac{6}{7} - \frac{1}{3} = \\
 & = 1 - \frac{1}{3} = \frac{2}{3}
 \end{aligned}$$

$$\begin{aligned}
 & \left[\left(1 - \frac{2}{3} \right) \cdot \frac{5}{6} \cdot \left(1 - \frac{2}{3} \right) + \frac{1}{3} : 3 \right] \cdot \frac{1}{3} + \frac{5}{6} - \left(1 - \frac{8}{9} \right) = \\
 & = \left[\left(\frac{3-2}{3} \right) \cdot \frac{5}{6} \cdot \left(\frac{3-2}{3} \right) + \frac{1}{3} \cdot \frac{1}{3} \right] \cdot \frac{1}{3} + \frac{5}{6} - \left(\frac{9-8}{9} \right) = \\
 & = \left[\frac{1}{3} \cdot \frac{5}{6} \cdot \frac{1}{3} + \frac{1}{9} \right] \cdot \frac{1}{3} + \frac{5}{6} - \frac{1}{9} = \\
 & = \left[\frac{1}{18} + \frac{1}{9} \right] \cdot \frac{1}{3} + \frac{5}{6} - \frac{1}{9} = \\
 & = \left[\frac{1+2}{18} \right] \cdot \frac{1}{3} + \frac{5}{6} - \frac{1}{9} = \\
 & = \frac{3}{18} \cdot \frac{1}{3} + \frac{5}{6} - \frac{1}{9} = \\
 & = \frac{1}{18} + \frac{5}{6} - \frac{1}{9} = \\
 & = \frac{1+15-2}{18} = \\
 & = \frac{14}{18} = \frac{7}{9}
 \end{aligned}$$

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

$$\begin{aligned}
 & \left\{ \left[\left(1 + \frac{1}{2} : 2 - \frac{1}{2} \right) + \left(\frac{1}{3} : \frac{1}{3} + \frac{1}{2} \cdot \frac{1}{3} \right) \right] - \left(1 : \frac{3}{5} - \frac{1}{2} + 1 \right) \right\} : \frac{3}{4} = \\
 & = \left\{ \left[\left(1 + \frac{1}{4} - \frac{1}{2} \right) + \left(1 + \frac{1}{6} \right) \right] - \left(\frac{5}{3} - \frac{1}{2} + 1 \right) \right\} \cdot \frac{4}{3} = \\
 & = \left\{ \left[\left(\frac{4 + 1 - 2}{4} \right) + \left(\frac{6 + 1}{6} \right) \right] - \left(\frac{10 - 3 + 6}{6} \right) \right\} \cdot \frac{4}{3} = \\
 & = \left\{ \left[\frac{3}{4} + \frac{7}{6} \right] - \frac{7}{6} \right\} \cdot \frac{4}{3} = \\
 & = \left\{ \frac{9 + 14}{12} - \frac{7}{6} \right\} \cdot \frac{4}{3} = \\
 & = \left\{ \frac{23}{12} - \frac{7}{6} \right\} \cdot \frac{4}{3} = \\
 & = \frac{23 - 14}{12} \cdot \frac{4}{3} = \\
 & = \frac{9}{12} \cdot \frac{4}{3} = \frac{3}{4} \cdot \frac{4}{3} = 1
 \end{aligned}$$


$$\begin{aligned}
 & \left[\frac{1}{2} - \left(1 - \frac{1}{3} \right) : \frac{5}{6} \right] \cdot \left[\left(1 + \frac{3}{4} \right) - \left(1 - \frac{3}{4} \right) : \left(1 + \frac{3}{4} \right) - 1 \right] : \frac{17}{14} = \\
 & = \left[\frac{1}{2} - \frac{2}{3} : \frac{5}{6} \right] \cdot \left[\frac{7}{4} - \frac{1}{4} : \frac{7}{4} - 1 \right] \cdot \frac{14}{17} = \\
 & = \left[\frac{1}{2} - \frac{2}{3} \cdot \frac{6}{5} \right] \cdot \left[\frac{7}{4} - \frac{1}{4} \cdot \frac{4}{7} - 1 \right] \cdot \frac{14}{17} = \\
 & = \left[\frac{1}{2} - \frac{4}{5} \right] \cdot \left[\frac{7}{4} - \frac{1}{7} - 1 \right] \cdot \frac{14}{17} = \\
 & = \frac{5-8}{10} \cdot \left[\frac{49-4-28}{28} \right] \cdot \frac{14}{17} = \\
 & = \frac{3}{10} \cdot \frac{17}{28} \cdot \frac{14}{17} = \frac{3}{20}
 \end{aligned}$$



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


$$\begin{aligned}
 & \left[\left(\frac{5}{9} - \frac{1}{6} \right) \cdot \frac{45}{4} - \frac{7}{4} \cdot \frac{7}{4} \right] \cdot \left[\frac{11}{21} + \frac{20}{9} \cdot \left(\frac{6}{7} - \frac{9}{28} \right) \right] = \\
 & = \left[\frac{10}{18} - \frac{3}{4} \cdot \frac{45}{4} - \frac{49}{16} \right] \cdot \left[\frac{11}{21} + \frac{20}{9} \cdot \frac{24-9}{28} \right] = \\
 & = \left[\frac{7}{18} \cdot \frac{45}{4} - \frac{49}{16} \right] \cdot \left[\frac{11}{21} + \frac{20}{9} \cdot \frac{15}{28} \right] = \\
 & = \left[\frac{35}{8} - \frac{49}{16} \right] \cdot \left[\frac{11}{21} + \frac{25}{21} \right] = \\
 & = \frac{70-49}{16} \cdot \frac{11+25}{21} = \\
 & = \frac{21}{16} \cdot \frac{36}{21} = \\
 & = \frac{21}{16} \cdot \frac{12}{7} = \frac{9}{4}
 \end{aligned}$$


$$\begin{aligned}
 & \left\{ \left[\frac{4}{7} + \frac{16}{15} \cdot \left(\frac{5}{56} + \frac{1}{14} + \frac{1}{4} \right) \right] \cdot \frac{7}{4} - \frac{5}{12} \right\} \cdot \frac{36}{13} - \frac{9}{4} \cdot \left(1 + \frac{1}{3} \right) = \\
 & = \left\{ \left[\frac{4}{7} + \frac{16}{15} \cdot \frac{5 - 4 + 14}{56} \right] \cdot \frac{7}{4} - \frac{5}{12} \right\} \cdot \frac{36}{13} - \frac{9}{4} \cdot \frac{3 + 1}{3} = \\
 & = \left\{ \left[\frac{4}{7} + \frac{16}{15} \cdot \frac{15}{56} \right] \cdot \frac{7}{4} - \frac{5}{12} \right\} \cdot \frac{36}{13} - \frac{9}{4} \cdot \frac{4}{3} = \\
 & = \left\{ \left[\frac{4}{7} + \frac{2}{7} \right] \cdot \frac{7}{4} - \frac{5}{12} \right\} \cdot \frac{36}{13} - 3 = \\
 & = \left\{ \frac{6}{7} \cdot \frac{7}{4} - \frac{5}{12} \right\} \cdot \frac{36}{13} - 3 = \\
 & = \left\{ \frac{3}{2} - \frac{5}{12} \right\} \cdot \frac{36}{13} - 3 = \\
 & = \frac{18 - 5}{12} \cdot \frac{36}{13} - 3 = \\
 & = \frac{13}{12} \cdot \frac{36}{13} - 3 = \\
 & = 3 - 3 = 0
 \end{aligned}$$


Keywords

 *Matematica, Aritmetica, Frazioni, Espressioni Q, addizione, sottrazione, moltiplicazione, divisione, esercizi con soluzioni*

  *Math, Arithmetic, Fraction expressions, Fraction, Expression, Addition, Subtraction, Multiplication, Division, Fraction expressions solved*

 *Matemática, Aritmética, Fracción, Expresiones, Resta, Sustracción, Suma, Adición, Multiplicación, División*

 *Mathématique, Arithmétique, Fraction, Problèmes avec fractions, Addition, Soustraction, Multiplication, Division*

 *Mathematik, Arithmetik, Bruchrechnung, Bruch, Subtraktion, Addition, Multiplikation, Division*

Arabic: كَسْر

Chinese (Simplified): 分数

Chinese (Traditional): 分數

Czech: zlomek

Danish: brøkdel

Dutch: deel, breuk

Estonian: murd(arv)

Finnish: murtoluku

French: fraction

Greek: κλάσμα

Hungarian: hányad, tört(rész)

Icelandic: brot

Indonesian: pecahan

Japanese: 分数

Korean: 분수

Lithuanian: trupmena

Norwegian: brøk(del)

Polish: ułamek

Portuguese (Brazil): fração

Portuguese (Portugal): fracção

Romanian: fracție

Russian: дробь

Slovak: zlomek

Slovenian: ulomek

Swedish: del

Turkish: kesir