

# Zbrajanje i oduzimanje razlomaka

– rješenja –

**Razlomke s različitim nazivnicima zbrajamo/oduzimamo tako da:**

1° Razlomke svedemo na **najmanji zajednički nazivnik** (isti nazivnik)

2° Nazivnik prepíšemo, a brojnike zbrojimo/oduzmemo

3° Razlomak **skratimo** do kraja (ako je skrativ)

4° Razlomak pretvorimo u **mješoviti broj** (ako je veći od 1)

1) Izračunaj:

$$\begin{aligned} \text{a)} \quad \frac{7}{2} + \frac{3}{4} &= \frac{14}{4} + \frac{3}{4} \\ &= \frac{17}{4} \\ &= 4\frac{1}{4} \end{aligned}$$

$$\begin{aligned} \text{b)} \quad \frac{11}{6} + \frac{1}{2} &= \frac{11}{6} + \frac{3}{6} \\ &= \frac{14}{6} \\ &= \frac{7}{3} \\ &= 2\frac{1}{3} \end{aligned}$$

$$\begin{aligned} \text{c)} \quad \frac{8}{5} - \frac{3}{10} &= \frac{16}{10} - \frac{3}{10} \\ &= \frac{13}{10} \\ &= 1\frac{3}{10} \end{aligned}$$

$$\begin{aligned} \text{d)} \quad \frac{1}{2} + \frac{15}{14} &= \frac{7}{14} + \frac{15}{14} \\ &= \frac{22}{14} \\ &= 1\frac{4}{7} \end{aligned}$$

$$\begin{aligned} \text{e)} \quad \frac{3}{4} - \frac{7}{12} &= \frac{9}{12} - \frac{7}{12} \\ &= \frac{2}{12} \\ &= \frac{1}{6} \end{aligned}$$

$$\begin{aligned} \text{f)} \quad \frac{2}{3} - \frac{2}{9} &= \frac{6}{9} - \frac{2}{9} \\ &= \frac{4}{9} \end{aligned}$$

2) Izračunaj:

$$\begin{aligned} \text{a)} \quad \frac{4}{3} + \frac{5}{7} &= \frac{28}{21} + \frac{15}{21} \\ &= \frac{43}{21} \\ &= 2\frac{1}{21} \end{aligned}$$

$$\begin{aligned} \text{b)} \quad \frac{7}{3} - \frac{3}{2} &= \frac{14}{6} - \frac{9}{6} \\ &= \frac{5}{6} \end{aligned}$$

$$\begin{aligned} \text{c)} \quad \frac{4}{5} + \frac{11}{4} &= \frac{16}{20} + \frac{55}{20} \\ &= \frac{71}{20} \\ &= 3\frac{11}{20} \end{aligned}$$

$$\begin{aligned} \text{d)} \quad \frac{7}{4} - \frac{5}{9} &= \frac{63}{36} - \frac{20}{36} \\ &= \frac{43}{36} \\ &= 1\frac{7}{36} \end{aligned}$$

$$\begin{aligned} \text{e)} \quad \frac{4}{5} - \frac{1}{3} &= \frac{12}{15} - \frac{5}{15} \\ &= \frac{7}{15} \end{aligned}$$

$$\begin{aligned} \text{f)} \quad \frac{17}{14} + \frac{8}{5} &= \frac{85}{70} + \frac{112}{70} \\ &= \frac{197}{70} \\ &= 2\frac{57}{70} \end{aligned}$$

3) Izračunaj:

$$\text{a) } \frac{5}{16} + \frac{3}{20} = \frac{25 + 12}{80} = \frac{37}{80}$$

$$\frac{16, 20}{4, 5} \Big| 4$$

$$\text{b) } \frac{3}{10} - \frac{2}{15} = \frac{9 - 4}{30} = \frac{5}{30} = \frac{1}{6}$$

$$\text{c) } \frac{17}{6} - \frac{11}{10} = \frac{85 - 33}{30} = \frac{52}{30} = 1 \frac{11}{15}$$

$$\text{d) } \frac{5}{21} + \frac{11}{14} = \frac{10 + 33}{42} = \frac{43}{42} = 1 \frac{1}{42}$$

$$\frac{21, 14}{3, 2} \Big| 7$$

$$\text{e) } \frac{9}{8} + \frac{1}{6} = \frac{27 + 20}{24} = \frac{47}{24} = 1 \frac{23}{24}$$

$$\text{f) } \frac{21}{12} - \frac{13}{18} = \frac{63 - 26}{36} = \frac{37}{36} = 1 \frac{1}{36}$$

$$\frac{12, 18}{6, 9} \Big| 2$$

4) Izračunaj:

$$\text{a) } 3 + \frac{7}{11} = 3 \frac{7}{11}$$

$$\text{b) } 1 - \frac{8}{9} = \frac{9}{9} - \frac{8}{9} = \frac{1}{9}$$

$$\text{c) } 3 \frac{5}{6} - 1 \frac{1}{4} = \frac{23}{6} - \frac{5}{4} = \frac{46 - 15}{12} = \frac{31}{12} = 2 \frac{7}{12}$$

$$\text{d) } 8 - \frac{4}{9} = \frac{72}{9} - \frac{4}{9} = \frac{68}{9} = 7 \frac{5}{9}$$

$$\text{e) } 6 \frac{3}{5} + 0.25 = \frac{33}{5} + \frac{1}{4} = \frac{132 + 5}{20} = \frac{137}{20} = 6 \frac{17}{20}$$

$$\text{c) } 2 \frac{2}{3} - 1 \frac{1}{6} = \frac{8}{3} - \frac{7}{6} = \frac{16 - 7}{6} = \frac{9}{6} = 1 \frac{1}{2}$$

**Podsjetnik:**

$$0.2 = \frac{1}{5}$$

$$0.5 = \frac{1}{2}$$

$$0.25 = \frac{1}{4}$$

$$0.75 = \frac{3}{4}$$

$$0.125 = \frac{1}{8}$$

5) Izračunaj:

$$\text{a) } \frac{7}{8} - \frac{3}{4} + \frac{1}{6} = \frac{21 - 18 + 4}{24} = \frac{7}{24}$$

$$\text{b) } 1 \frac{1}{3} + \frac{5}{6} - \frac{1}{3} + 2 \frac{1}{3} + 0.5 = \frac{4}{3} + \frac{5}{6} - \frac{1}{3} + \frac{7}{3} + \frac{1}{2} = \frac{8 + 5 - 2 + 14 + 3}{6} = \frac{28}{6} = 4 \frac{2}{3}$$

$$\begin{aligned}
 \text{c) } 3\frac{1}{4} - \left(1\frac{1}{6} + 1\frac{1}{2}\right) &= \frac{13}{4} - \left(\frac{7}{6} + \frac{3}{2}\right) \\
 &= \frac{13}{4} - \left(\frac{7}{6} + \frac{9}{6}\right) \\
 &= \frac{13}{4} - \frac{16}{6} \\
 &= \frac{39 - 32}{12} \\
 &= \frac{7}{12}
 \end{aligned}$$

$$\begin{aligned}
 \text{d) } 2\frac{1}{4} - \left(\frac{3}{4} - \frac{1}{6} + 1\frac{1}{8}\right) &= \frac{9}{4} - \left(\frac{3}{4} - \frac{1}{6} + \frac{9}{8}\right) \\
 &= \frac{9}{4} - \frac{18 - 4 + 27}{24} \\
 &= \frac{9}{4} - \frac{41}{24} \\
 &= \frac{54 - 41}{24} \\
 &= \frac{13}{24}
 \end{aligned}$$

$$\begin{aligned}
 \text{e) } \left(3\frac{4}{15} - 2\frac{3}{5}\right) + \left(2\frac{2}{15} + \frac{5}{9}\right) &= \left(\frac{49}{15} - \frac{13}{5}\right) + \left(\frac{32}{15} + \frac{5}{9}\right) \\
 &= \frac{49 - 39}{15} + \frac{96 + 25}{45} \\
 &= \frac{10}{15} + \frac{121}{45} \\
 &= \frac{30 + 121}{45} \\
 &= \frac{151}{45} \\
 &= 3\frac{16}{45}
 \end{aligned}$$

6) Razliku brojeva  $1\frac{5}{8}$  i  $\frac{11}{12}$  uvećaj za razliku brojeva  $1\frac{3}{4}$  i  $\frac{3}{2}$ .

$$\begin{aligned}
 \left(1\frac{5}{8} - \frac{11}{12}\right) + \left(1\frac{3}{4} - \frac{3}{2}\right) &= \left(\frac{13}{8} - \frac{11}{12}\right) + \left(\frac{7}{4} - \frac{3}{2}\right) \\
 &= \frac{39 - 22}{24} + \frac{7 - 6}{4} \\
 &= \frac{17}{24} + \frac{1}{4} \\
 &= \frac{17 - 6}{24} \\
 &= \frac{11}{24}
 \end{aligned}$$

7) U prvom satu pješak je prešao  $5\frac{1}{4}$  km, u drugom  $4\frac{5}{6}$  km, a u trećemu  $3\frac{7}{8}$  km.

Koliki je put prešao u ta tri sata?

**Prvi sat:**  $5\frac{1}{4}$  km

**Drugi sat:**  $4\frac{5}{6}$  km

**Treći sat:**  $3\frac{7}{8}$  km

**U sva tri sata zajedno:**  $5\frac{1}{4} + 4\frac{5}{6} + 3\frac{7}{8} = 12 + \frac{6 + 20 + 21}{24}$

$$\begin{aligned}
 &= 12 + \frac{47}{24} \\
 &= 12 + 1\frac{23}{24} \\
 &= 13\frac{23}{24} \text{ km}
 \end{aligned}$$

8) Obitelj Marić želi tijekom ljetnih praznika obojiti sve zidove u svom stanu.

Cijeli posao planirali su obaviti za 4 dana. Prvi su dan obavili  $\frac{5}{20}$  posla, drugi dan  $\frac{1}{5}$  manje nego prvi dan, a treći dan koliko u prva dva dana zajedno. Koliki dio posla ostaje obitelji Marić za četvrti dan?

**Prvi dan:**  $\frac{5}{20}$  posla

**Drugi dan:**  $\frac{5}{20} - \frac{1}{5} = \frac{5-4}{20} = \frac{1}{20}$  posla

**Treći dan:**  $\frac{5}{20} + \frac{1}{20} = \frac{6}{20}$  posla

**Prva tri dana:**  $\frac{5}{20} + \frac{1}{20} + \frac{6}{20} = \frac{12}{20} = \frac{3}{5}$  posla

Odradi li su  $\frac{3}{5}$  posla, pa zadnji dan trebaju napraviti još  $\frac{2}{5}$  posla.