

= Racionalni brojevi =

1) Usporedi brojeve:

a) $-3\frac{2}{5} \otimes \frac{-11}{3}$

b) $\frac{-4}{5} \otimes \frac{-5}{6}$

c) $-0.9 \otimes -0.89$

$\frac{-14}{5} \otimes \frac{-11}{3}$

$\frac{-24}{30} \otimes \frac{-25}{30}$

$-0.90 \otimes -0.89$

$\frac{-51}{15} \otimes \frac{-55}{15}$

d) $\frac{-37}{36} \otimes 1$

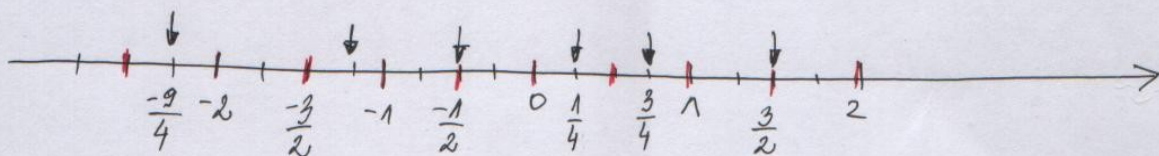
e) $-13.2 \otimes -14.2$

f) $\frac{-11}{30} \otimes \frac{-8}{45}$

↓
negativan broj ↓
 pozitivni broj

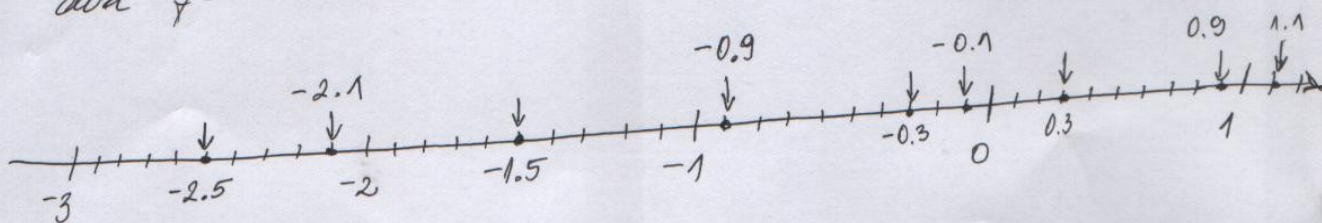
$\frac{-33}{90} \otimes \frac{-16}{90}$

2)

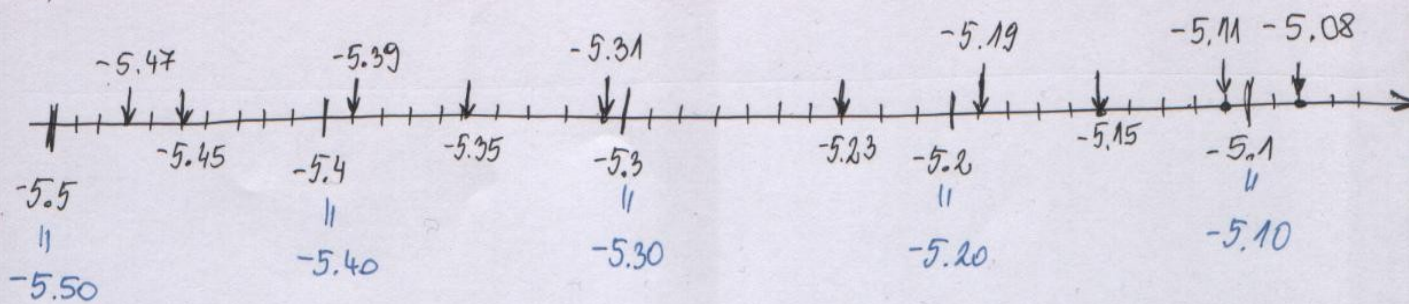


Jedinična dužina podijeljena je na 4 jednaka dijela. Dakle, označene su četvrtine. "Dvije crtice" označavaju POLOVINE (jedinična dužina je podijeljena na dva jednaka dijela).

3)



Jedinična dužina podijeljena je na 10 jednakih dijelova. Prvi dio čini $\frac{1}{10}$ jedinične dužine, odnosno 0.1.



5) Zbrajanje i oduzimanje razlomaka (decimalnih brojeva)

1) MJEŠOVITE BROJEVE → u RAZLONKE

2) Svedemo razlomke na najmanji zajednički nazivnik

3) Zbrojimo/oduzmemo razlomke

[problem se svodi na zbrajanje i oduzimanje CIJELIH brojeva].

$$a) \frac{4}{5} + \frac{-3}{4} = \frac{4}{5} - \frac{3}{4} = \frac{16}{20} - \frac{15}{20} = \frac{1}{20}$$

$$b) \frac{-1}{10} + \frac{5}{6} = \frac{-3}{30} + \frac{25}{30} = \frac{22}{30} = \frac{11}{15}$$

$$c) -\frac{1}{6} - 0.7 = -\frac{1}{6} - \frac{7}{10} = \frac{-5}{30} - \frac{21}{30} = \frac{-26}{30} = \frac{-13}{15}$$

$$d) -3\frac{1}{2} - (-1\frac{1}{8}) = -\frac{7}{2} + \frac{1}{8} = \frac{-28}{8} + \frac{1}{8} = \frac{-27}{8}$$

$$e) -5\frac{3}{4} + 2\frac{5}{8} = \frac{-23}{4} + \frac{21}{8} = \frac{-46}{8} + \frac{21}{8} = \frac{-25}{8} = -3\frac{1}{8}$$

$$f) 2.746 - 4.47 = -1.724$$

→ predznak vedeg uzmemo

→ brojeve oduzmemo

$$\begin{array}{r} 4.470 \\ - 2.746 \\ \hline 1.724 \end{array}$$

6) Množenje i dijeljenje

MNOŽENJE → "unakrsno" kratimo

→ množimo brojnik s brojičkom,
nazivnik s nazivnikom

DIJELJENJE → množimo s RECIPROKIM brojevima

$$a) \frac{-7}{9} \cdot 3 = \frac{-7}{9} \cdot \frac{3}{1} = \frac{-7}{3} = -2 \frac{1}{3} \quad \text{minus} \cdot \text{plus} = \text{minus}$$

$$b) -\frac{8}{15} \cdot \left(\frac{-9}{20}\right) = \frac{3}{20}$$

minus · minus = plus

$$c) -\frac{9}{14} \cdot 2 \frac{2}{3} = \frac{-9}{14} \cdot \frac{8}{3} = \frac{-12}{7} = -1 \frac{5}{7}$$

↓
pretvoriti
u razlomak

$$d) \frac{3}{5} : (-2) = \frac{3}{5} \cdot \frac{-1}{2} = \frac{-3}{10} \quad \rightarrow \text{množimo s recipročnim}$$

$$e) \frac{-42}{65} : \frac{7}{13} = \frac{-42}{65} \cdot \frac{13}{7} = \frac{-6}{5} = -1 \frac{1}{5}$$

$$f) -5 \frac{1}{3} : \left(-4 \frac{5}{6}\right) = \frac{-16}{3} : \left(-\frac{29}{6}\right) = \frac{-16}{3} \cdot \left(\frac{-6}{29}\right) = \frac{32}{29} = 1 \frac{3}{29}$$

$$g) -3.47 \cdot 14.2 = -49.274$$

Množimo kao prirodne brojeve. Na kraju određujemo decimalnu točku.

Umnožak će imati onoliko decimala koliko oba faktora imaju decimala zajedno.

$$\begin{array}{r} 3.47 \cdot 14.2 \\ 347 \\ 1388 \\ + 694 \\ \hline 49.274 \end{array}$$

$$b.) \quad -2.88 : (-0.3) = -28.8 : (-3) = 9.6$$

$$\begin{array}{r} 28.8 : 3 = 9.6 \\ -27 \\ \hline 18 \\ -18 \\ \hline 0 \end{array}$$

minus :
minus
daje plus

znawo dzieliti decimalni broj s prirodnim

$$i.) \quad -2.55 = \frac{1}{2} = -2.55 : 0.5 = -25.5 : 5 = -5.1$$

$$\begin{array}{r} 25.5 : 5 = 5.1 \\ -25 \\ \hline 05 \\ -5 \\ \hline 0 \end{array}$$

4) Izracunaj

$$a) \quad \frac{-2}{5} + \frac{7}{12} - \left(\frac{1}{5} - 2\frac{3}{4} \right) + (-0.5) = \frac{-2}{5} + \frac{7}{12} - \left(\frac{1}{5} - \frac{11}{4} \right) - \frac{1}{2}$$

$$= \frac{-2}{5} + \frac{7}{12} - \frac{1}{5} + \frac{11}{4} - \frac{1}{2}$$

$$= \frac{-24}{60} + \frac{35}{60} - \frac{12}{60} + \frac{165}{60} - \frac{30}{60}$$

$$= \frac{11}{60} - \frac{12}{60} + \frac{135}{60}$$

$$= \frac{-1}{60} + \frac{135}{60}$$

$$= \frac{134}{60} = \frac{67}{30}$$

$$= 2\frac{7}{30}$$

$$\begin{aligned}
 7.6) \quad \left(\underline{-\frac{4}{5}} + \underline{\frac{3}{4}} \right) \cdot \left(\underline{-\frac{1}{2}} - \underline{\frac{2}{5}} \right) &= \left(\frac{-16}{20} + \frac{15}{20} \right) \cdot \left(\frac{-5}{10} - \frac{4}{10} \right) \\
 &= \frac{-1}{20} \cdot \frac{-9}{10} \\
 &= \frac{9}{200}
 \end{aligned}$$

$$c) \quad \left(\frac{5}{12} + \frac{3}{4} - \frac{5}{6} \right) \cdot 1 \frac{4}{5} - 0.3 =$$

racunamo zagradu

množimo

na kraju odužimamo (REDOSLIJED RACUNSKIH OPERACIJA!)

$$= \left(\frac{5}{12} + \frac{9}{12} - \frac{10}{12} \right) \cdot \frac{9}{5} - \frac{3}{10} \quad \rightsquigarrow \text{racunamo zagradu}$$

$$= \frac{\cancel{4}^1}{\cancel{12}_4} \cdot \frac{9^3}{5} - \frac{3}{10} \quad \rightsquigarrow \text{najprije množimo}$$

$$= \frac{3}{5} - \frac{3}{10} \quad \rightsquigarrow \text{svodimo razlomke na naj. nazivnik}$$

$$= \frac{6}{10} - \frac{3}{10} \quad \rightsquigarrow \text{odužimamo rac. brojeve}$$

$$= \frac{3}{10}$$

POZOR!

- 1) Računamo zagradu
- 2) Množimo i dijelimo
- 3) Zbrajamo i odužimamo
- 4) Rezultat, ako možemo, skratimo i pretvorimo u mješoviti broj

8. b)

$$9\frac{1}{8} - 2\frac{1}{8} \cdot \left(1\frac{1}{5} - 1\frac{13}{20} : 2\frac{1}{5} + \frac{3}{5}\right) : 2\frac{1}{8} - 1\frac{1}{8} \cdot 2\frac{2}{3} =$$

$$\Downarrow \\ = 1 \quad \left(2\frac{1}{8} : 2\frac{1}{8} = 1\right)$$

$$= \frac{73}{8} - \left(\frac{6}{5} - \frac{33}{20} \cdot \frac{5}{1} + \frac{3}{5}\right) - \frac{3}{8} \cdot \frac{8}{1}$$

$$= \frac{73}{8} - \left(\frac{6}{5} - \frac{3}{4} + \frac{3}{5}\right) - 3$$

$$= \frac{73}{8} - \frac{6}{5} + \frac{3}{4} - \frac{3}{5} - 3$$

$$= \frac{365}{40} - \frac{48}{40} + \frac{30}{40} - \frac{24}{40} - \frac{120}{40}$$

$$= \frac{317}{40} + \frac{6}{40} - \frac{120}{40}$$

$$= \frac{323}{40} - \frac{120}{40}$$

$$= \frac{203}{40}$$

$$= 5\frac{3}{40}$$

g)

$$-1 \cdot \frac{3}{4} - \left(-1 - \frac{3}{4}\right) = \frac{-3}{4} - \left(\frac{-4}{4} - \frac{3}{4}\right)$$

$$= \frac{-3}{4} - \left(\frac{-7}{4}\right)$$

$$= \frac{-3}{4} + \frac{7}{4}$$

$$= \frac{4}{4}$$

$$= 1$$

Vedi je ka jednan.

$$10) \quad (2.74 - (-0.5)) : \left(-\frac{1}{4} : \frac{1}{2}\right) = (2.74 + 0.5) : \left(\frac{-1}{4} \cdot \frac{2}{1}\right)$$

$$= 3.24 : \left(-\frac{1}{2}\right)$$

$$= 3.24 : (-0.5)$$

$$= 32.4 : (-5)$$

$$= -6.48$$

$$32.4 : 5 = 6.48$$

24

40

0