

1. Vypočítejte a výsledek zapíšte jako zlomek v základním tvaru

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

$$2 - \left(\frac{4}{5} + \frac{2}{3}\right) = 2 - \frac{12+10}{15} = \frac{30}{15} - \frac{22}{15} = \frac{8}{15}$$

$$\frac{9}{19} \cdot \left(\frac{2}{15} + \frac{5}{6} - \frac{3}{10} + \frac{3}{5}\right) = \frac{9}{19} \cdot \frac{4+25-9+18}{30} = \frac{3}{19} \cdot \frac{38}{10} = \frac{3 \cdot 2}{10} = \frac{3}{5}$$

$$\left(\frac{1}{8} + \frac{5}{2}\right) \cdot \left(\frac{1}{5} - \frac{3}{7}\right) = \frac{1+20}{8} \cdot \frac{7-15}{35} = \frac{21}{8} \cdot \frac{(-8)}{35} = -\frac{21}{35} = -\frac{3}{5}$$

$$\left(\frac{5}{9} - \frac{3}{5}\right) : \frac{2}{9} = \frac{25-27}{45} \cdot \frac{9}{2} = -\frac{2}{5} \cdot \frac{1}{2} = -\frac{1}{5}$$

$$\left(\frac{2}{3} - \frac{3}{4}\right) : \left(\frac{4}{5} - \frac{5}{6}\right) = \frac{8-9}{12} \cdot \frac{24-25}{30} = -\frac{1}{12} \cdot \left(-\frac{30}{1}\right) = \frac{30}{12} = \frac{5}{2}$$

$$\left(\frac{3}{4} - \frac{5}{12}\right) - \left(\frac{1}{2} + \frac{1}{3}\right) = \frac{9-5}{12} - \frac{3+2}{6} = \frac{4}{12} - \frac{5}{6} = \frac{2-5}{6} = -\frac{3}{6} = -\frac{1}{2}$$

$$\frac{\frac{3}{5} - \frac{1}{3}}{\frac{1}{6} + \frac{2}{5}} = \frac{\frac{9-5}{15}}{\frac{5+12}{30}} = \frac{4}{15} \cdot \frac{30}{17} = \frac{8}{17}$$

2. V R řešte rovnici

$$2x - 3 = 3x + 1 \quad | -3x + 3$$

$$2x - 3x = 1 + 3$$

$$-x = 4$$

$$x = -4$$

$$3(x-2) - 5(3-x) = (1-x) + (3x+5)$$

$$3x - 6 - 15 + 5x = 1 - x + 3x + 5$$

$$8x - 21 = 2x + 6$$

$$8x - 2x = 6 + 21$$

$$6x = 27$$

$$x = \frac{27}{6}$$

$$x = \frac{9}{2}$$

$$x - \frac{1}{2} = \frac{5}{6}x + \frac{2}{3} \quad | \cdot 6$$

$$6x - 3 = 5x + 4$$

$$6x - 5x = 4 + 3$$

$$x = 7$$

$$zk: L = -8 - 3 = -11$$

$$P = -12 + 1 = -11$$

$$L = P$$

$$zk: L = 3 \cdot \left(\frac{9}{2} - \frac{4}{2}\right) - 5\left(\frac{9}{2} - \frac{9}{2}\right) = \frac{15}{2} + \frac{15}{2} = 15$$

$$P = \frac{2}{2} - \frac{9}{2} + \frac{27}{2} + \frac{10}{2} = \frac{30}{2} = 15$$

$$L = P$$

$$zk: L = 7 - \frac{1}{2} = 6,5$$

$$P = \frac{35}{6} + \frac{4}{6} = \frac{39}{6} = \frac{13}{2}$$

$$L = P$$

$$5(x+2) - x = 8x - 2(2x+3)$$

$$5x+10-x = 8x-4x-6$$

$$4x+10 = 4x-6$$

$$4x-4x = -6-10$$

$$0x = -16$$

$\bar{N}\bar{R}$   
(nemá řešení)

$$5(x+1) - x = 10x - 3(2x+1) + 8$$

$$5x+5-x = 10x-6x-3+8$$

$$4x+5 = 4x+5$$

$$0x = 0$$

$$\underline{x \in \mathbb{R}}$$

$$(2x-4)(3x+7) = (6x+2)(x+1)$$

$$6x^2+14x-12x-28 = 6x^2+6x+2x+2 \quad | -6x^2$$

$$2x-28 = 8x+2$$

$$-6x = 30$$

$$\underline{x = -5}$$

$$zk: L = -14 \cdot (-8) = 112$$

$$P = -28 \cdot (-4) = 112$$

$$\underline{L=P}$$

$$\frac{4x-7}{2} - \frac{x-4}{6} = 2x-3 \quad | \cdot 6$$

$$3(4x-7) - (x-4) = 6(2x-3)$$

$$12x-21-x+4 = 12x-18$$

$$11x-17 = 12x-18$$

$$-x = -1$$

$$\underline{x = 1}$$

$$\frac{3}{2} - \frac{2x-3}{4} = \frac{x+2}{6} \quad | \cdot 12$$

$$18 - 3(2x-3) = 2(x+2)$$

$$18 - 6x + 9 = 2x + 4$$

$$-8x = -23$$

$$x = \frac{23}{8}$$

$$zk: L = \frac{4-7}{2} - \frac{1-3}{6} = -\frac{3}{2} + \frac{1}{2} = -1$$

$$P = 2 - 3 = -1$$

$$\underline{L=P}$$

$$zk: L = \frac{3}{2} - \frac{\frac{23}{4} - \frac{12}{4}}{4} = \frac{3}{2} - \frac{11}{4} \cdot \frac{1}{4} = \frac{24-11}{16} = \frac{13}{16}$$

$$P = \frac{\frac{23}{8} + \frac{16}{8}}{\frac{6}{1}} = \frac{39}{8} \cdot \frac{1}{6} = \frac{13}{16}$$

$$\underline{L=P}$$

$$\frac{x+2}{8} + \frac{5+x}{3} - \frac{5x+4}{6} = \frac{10-3x}{4} + x \quad | \cdot 24$$

$$3(x+2) + 8(5+x) - 4(5x+4) = 6(10-3x) + 24x$$

$$3x+6+40+8x-20x-16 = 60-18x+24x$$

$$-9x+30 = 60+6x$$

$$-15x = 30$$

$$\underline{x = -2}$$

$$zk: L = 0 + \frac{3}{3} - \frac{-10+4}{6} = 1+1 = 2$$

$$P = \frac{10+6}{4} - 2 = 4 - 2 = 2$$

$$\underline{L=P}$$