8. Vyřešte rovnice a proveďte zkoušku.

$\frac{2y}{3} - 5 = 7 \quad |\cdot 3$

$2y - 15 = 21$
$2y = 21 + 15$
$2y = 36$
$y = 36 : 2$
$y = 18$

Zk: $L = \frac{2\cdot 18}{3} - 5 = \frac{36}{3} - 5 = 12 - 5 = 7$
$P = 7$
$L = P$

$\frac{4-6m}{2} = \frac{1}{2} \quad |\cdot 2$

$4 - 6m = 1$
$-6m = 1 - 4$
$-6m = -3$
$m = -3 : (-6)$
$m = 0{,}5$

Zk: $L = \frac{4 - 6\cdot 0{,}5}{2} = \frac{4-3}{2} = \frac{1}{2}$
$P = \frac{1}{2}$
$L = P$

$\frac{u}{4} = \frac{3}{20} \quad |\cdot 20$

$5u = 3$
$u = \frac{3}{5}\ (0{,}6)$

Zk: $L = \frac{0{,}6\cdot 10}{4\cdot 10} = \frac{6}{40} = \frac{3}{20}$
$P = \frac{3}{20}$
$L = P$

$\frac{x}{3} + \frac{x}{6} = 15$

– řešení na předchozím listu

$\frac{u}{2} - \frac{u}{3} + \frac{u}{4} = 15$

– řešení na předchozím listu

$\frac{n}{4} - 7 = \frac{3n}{4} \quad |\cdot 4$

$n - 28 = 3n$
$n - 3n = 28$
$-2n = 28$
$n = 28 : (-2)$
$n = -14$

Zk: $L = -\frac{14}{4} - 7 = -3{,}5 - 7 = -10{,}5$
$P = \frac{3\cdot(-14)}{4} = \frac{3\cdot(-7)}{2} = -\frac{21}{2} = -10{,}5$
$L = P$

$\frac{y}{2} - \frac{y}{4} = 1\frac{1}{2}$

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

Zk: $L = \frac{6}{2} - \frac{6}{4} = \frac{12-6}{4} = \frac{6}{4} = \frac{3}{2} = 1\frac{1}{2}$
$P = 1\frac{1}{2}$
$L = P$

$\frac{x}{3} + \frac{1}{6} = \frac{x}{2} - \frac{1}{5} \quad |\cdot 30$

$10x + 5 = 15x - 6$
$10x - 15x = -6 - 5$
$-5x = -11$
$x = -11 : (-5)$
$x = \frac{11}{5}$

Zk: $L = \frac{\frac{11}{5}}{3} + \frac{1}{6} = \frac{11}{5}\cdot\frac{1}{3} + \frac{1}{6} = \frac{11}{15} + \frac{1}{6} = \frac{22+5}{30} = \frac{27}{30} = \frac{9}{10}$ *

* $P = \frac{\frac{11}{5}}{2} - \frac{1}{5} = \frac{11}{5}\cdot\frac{1}{2} - \frac{1}{5} = \frac{11}{10} - \frac{1}{5} = \frac{11-2}{10} = \frac{9}{10}$
$L = P$

$\frac{2a}{9} - \frac{a}{6} = \frac{a}{3} - \frac{1}{2} \quad |\cdot 18$

$4a - 3a = 6a - 9$
$4a - 3a - 6a = -9$
$-5a = -9$
$a = -9 : (-5)$
$a = \frac{9}{5} = 1{,}8$

Zk: $L = 2\cdot\frac{\frac{9}{5}}{9} - \frac{\frac{9}{5}}{6} = \frac{18}{5}\cdot\frac{1}{9} - \frac{9}{5}\cdot\frac{1}{6} = \frac{2}{5} - \frac{3}{10} = \frac{4-3}{10} = \frac{1}{10}$

$\frac{x}{3} - \frac{x}{8} = \frac{x}{12} + \frac{x}{8} \quad |\cdot 24$

$8x - 3x = 2x + 3x$
$8x - 3x - 2x - 3x = 0$
$0 = 0$

Rovnice má nekonečně řešení. ☺

nedělám zkoušku

$\frac{t-5}{2} = \frac{t-3}{4}$

– řešení na předchozím listu

$P = \frac{\frac{9}{5}}{3} - \frac{1}{2} = \frac{9}{5}\cdot\frac{1}{3} - \frac{1}{2} = \frac{3}{5} - \frac{1}{2} = \frac{6-5}{10} = \frac{1}{10}$
$L = P$

$\frac{x-2}{3} = \frac{x+4}{5} \quad |\cdot 15$

$5\cdot(x-2) = 3\cdot(x+4)$
$5x - 10 = 3x + 12$
$5x - 3x = 12 + 10$
$2x = 22$
$x = 22 : 2$
$x = 11$

Zk: $L = \frac{11-2}{3} = \frac{9}{3} = 3$
$P = \frac{11+4}{5} = \frac{15}{5} = 3$
$L = P$

9. Vyřešte rovnice a proveďte zkoušku.

$6\cdot(n+2)-9\cdot(n-1)=0$

$6n+12-9n+9=0$

$6n-9n=-9-12$

$-3n=-21$

$n=-21:(-3)$

$n=7$

Zk: $L=6\cdot(7+2)-9\cdot(7-1)=6\cdot 9-9\cdot 6=$

$=54-54=0$

$P=0$

$L=P$

$0{,}1-0{,}01x=-1$

$1{,}1:0{,}01=$

$=110:1=110$

$-0{,}01x=-1-0{,}1$

$-0{,}01x=-1{,}1$

$x=-1{,}1:(-0{,}01)$

$x=110$

Zk: $L=0{,}1-0{,}01\cdot 110=0{,}1-1{,}1=-1$

$P=-1$

$L=P$

$2\cdot(y-1)-3\cdot(y-2)=2\cdot(y+5)-4\cdot(y-3)$

$2y-2-3y+6=2y+10-4y+12$

$2y-3y-2y+4y=10+12-6+2$

$y=18$

Zk: $L=2\cdot(18-1)-3\cdot(18-2)=$

$=2\cdot 14-3\cdot 16=34-48=-14$

$P=2\cdot(18+5)-4\cdot(18-3)=$

$=2\cdot 23-4\cdot 15=46-60=-14$

$L=P$

$x-4\cdot(x-11)-5\cdot(x-16)=4\cdot(x-5)$

$x-4x+44-5x+80=4x-20$

$x-4x-5x-4x=-20-80-44$

$-12x=-144$

$x=-144:(-12)$

$x=12$

$\frac{2z}{9}-\frac{3z}{2}+\frac{5z}{6}=8-\frac{8z}{27}\quad /\cdot 54$

$12z-81z+45z=432-16z$

$12z-81z+45z+16z=432$

$-8z=432$

$z=432:(-8)$

$z=-54$

Zk: $L=\frac{2\cdot(-54)}{1}-\frac{3\cdot(-54)}{1}+\frac{5\cdot(-54)}{1}=$

$=-12+81-45=24$

$P=8-\frac{8\cdot(-54)}{-27}=8+16=24$

$L=P$

$x+\frac{2x-7}{2}-\frac{3x+1}{5}=5-\frac{x+6}{2}\quad /\cdot 10$

$10x+5\cdot(2x-7)-2\cdot(3x+1)=5\cdot 10-5(x+6)$

$10x+10x-35-6x-2=50-5x-30$

$10x+10x-6x+5x=50-30+35+2$

$19x=57$

$x=57:19$

$x=3$

Zk: $L=3+\frac{2\cdot 3-7}{2}-\frac{3\cdot 3+1}{5}=3+\left(\frac{-1}{2}\right)-\frac{10}{5}=$

$=3-0{,}5-2=0{,}5$

$P=5-\frac{3+6}{2}=5-\frac{9}{2}=5-4{,}5=0{,}5$

$L=P$