

OPAKOVÁNÍ - LINEÁRNÍ ROVNICE, NEROVNICE, JEJICH SOUSTAVY

① Řešit v R

a) $\frac{3}{5} - \frac{x-1}{10} = \frac{2+\frac{1}{2}}{5}$

b) $\frac{x+5}{3} - \frac{1}{2} = \frac{x-2}{3} - \frac{x-3}{2}$

c) $\frac{6+25x}{15} - (x-1) = \frac{2x}{3} + \frac{7}{5}$

d) $\frac{x+2}{4} - \frac{x-25}{5} + \frac{x-3}{4} < 7$

e) $\frac{2x-1}{4} - \frac{x+3}{2} > 1$

f) $4x-1 \leq 3(2-x) + 7(x-1)$

② Řešit v R, N

a) $x^3 = 4x$

b) $4-x^2 = x+2$

c) $(x+2)(x-3) = (1-x)(x+4) - 10$

d) $(x+\sqrt{2})^2 = x^2 + 2x(x+\sqrt{2})$

④ a) R d) $(-\infty, 10)$ ⑤ a) $\{-2, 0, 2, 3, 23\}$
b) $\emptyset$ e) $\emptyset$ b) $\{-2, 13, 313\}$
c) R f) R c) $\{-1, 0, 3, 0\}$
d) $\{-1, 13, 313\}$

③ Řešit v R

a) $\frac{2}{1-x^2} - \frac{1}{x+1} = \frac{1}{1-x}$

d) $\frac{x+5}{2x(x+3)} + \frac{x+3}{2(x-3)} + \frac{6}{x^2-9} = 0$

b) $\frac{2}{x^2-2x+1} + \frac{x}{(x-1)^2} - \frac{1}{x-1} = 0$ e) $\frac{3-\frac{3x-10}{3x-5}}{1-\frac{2x}{3x-5}} - \frac{1}{1-\frac{x}{2x-3}} = 0$

c) $\frac{4x-5}{3x} + \frac{2x-3}{x^2-3x} = \frac{x-2}{1-3}$

⑥ a) R $\{-1, 1\}$ b) $\emptyset$ c) $\{2, 3, 6\}$
d) $\{-1, 3, -3\}$ e) $\{0, \frac{5}{2}\}$

⑦ Řešit v R

a) $(2+x)(5-x) < 0$

b) $x^2-9 \geq 0$

c) $1-x^2 \geq x-1$

d) $\frac{x-3}{1-x} \geq 0$

e) $\frac{x+1}{3-x} < 3$

f) $\frac{1-1}{2-x} \geq 2$

g) $\frac{(2x+1)(x-3)}{4+x} \leq 0$

h) $\frac{x-1}{x+2} \geq \frac{x-3}{x+3}$

i) $\frac{x^2(x-1)}{(x-2)} \geq 0$

j) $\frac{x}{1+\frac{1}{1+x}} > 0$

$[-2, -1) \cup (0, +\infty)$

a) $(-\infty, -2) \cup (5, +\infty)$
b) $(-\infty, -3) \cup (3, +\infty)$
c) $(-4, 1)$
d) $(1, 3)$
e) $(-\infty, 2) \cup (3, +\infty)$
f) $(\frac{5}{2}, 2)$
g) $(-\infty, -4) \cup (-\frac{1}{2}, 3)$
h) $(-3, -2) \cup (-1, +\infty)$
i) $(-\infty, 1) \cup (2, +\infty)$

⑧ Řešit v R

a) $|x-2| = 3$

b) $|2x-1| = 2$

c) $|x-1| < 6$

d) $|9-3x| \geq 6$

e) $|1-x| > 2x-10$

f) $|5+2x| > x$

g) $|3-x| \leq x-5$

h) $3x+|x-4| = 6$

⑤ a) $\{-1, 5\}$ f) R
b) $\{-\frac{1}{2}, \frac{3}{2}\}$ g) $\emptyset$
c) $(-5, 7)$ h) $\{1, 3, 4, 5, 6, 7, 8, 9\}$
d) $(-\infty, 1) \cup (5, +\infty)$
e) $(-\infty, 9)$

⑨ Řešit v R

a) $2|x-4| + 2x-1 = |x+3|$

b) $|x-7| - |x-5| = 12-2x$

c) $|x| + |x+2| > 1$

d) $|2x| + |7x+1| \leq 0$

⑥ a) $\{-1, 4, 7\}$ b) $\{5, 7\}$ c) R d) $\emptyset$

⑦ Řešit v R x R

a) $\frac{x+1}{y+1} = \frac{3}{4}$

$\frac{y+1}{x+1} = \frac{4}{5}$

b) $x^2+y^2 = (x+1)^2 + (y+1)^2$

$x^2+y^2 = (x-1)^2 + (y-1)^2$

⑦ a) $\{4, 3\}$ b) $\emptyset$

⑧ Řešit v R x R x R

a) $\frac{3x+y}{x+1} = 2$

$\frac{3y+x}{x+1} = 2$

$\frac{3x+y}{y+1} = 2$

b) $4x-y+z = 6$

$2y-z = 1$

$4x-5y+3z = 8$

c) $x+2y+z = 1$

$3x-z = 6$

$7x-4y-5z = 16$

⑥ a) $\{1, 1, 1\}$ b) $\emptyset$ c) $\{[x, \frac{7}{2}-2x, 3x-6], x \in R\}$

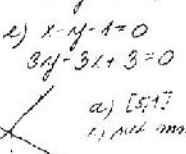
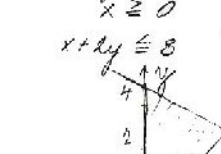
⑨ Řešit graficky

a) $x-4y > -2$

b) $x+1 \geq y$
 $x+y \geq 4$

c) $x-y \leq 2$
 $x \geq 0$

d) $x+y-6=0$
 $x-y-4=0$



⑩ Řešit dif. obor

a) $\frac{3x}{|x-2|-2}$

b) $\frac{3x}{\sqrt{|x-2|-2}}$

c) $\frac{\sqrt{3-x}}{x-2}$

a) $|x-2|-2 \neq 0$ b) $|x-2|-2 \geq 0 \wedge |x-2|-2 \neq 0$ c) $\frac{3-x}{x-2} - 1 \geq 0$
D = $R - \{0, 4\}$ D = $(-2, 0) \cup (4, +\infty)$ D = $(2, \frac{5}{2}]$