

2. Základní rovnice

Lineární rovnice

Řešte rovnice v množině R:

$$1) 2(5x - 4) - 4(2x + 3) = 10 - 4x$$

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

$$3) 3x - 2(5 + 3x) = -15 - (3x - 5)$$

$$4) (2x + 3)^2 - (x - 1)^2 = 3(x + 1)^2$$

$$5) \frac{5x}{6} + \frac{2x}{3} = 1 - \frac{x}{4}$$

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

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

$$8) \frac{x+1}{2} - \frac{2x-3}{7} = \frac{3x-1}{14} + 2$$

$$9) \frac{3}{4}(2x - 3) - \frac{2}{5}(x + 5) = -0,5(3x - 1)$$

$$10) \frac{1}{2} \left[4 \left(\frac{1}{8}(x + 1) \right) \right] = 2$$

$$11) \frac{1}{2} \left[4 \left(\frac{1}{8}(x + 1)^2 \right) \right] = 5 + 0,25x^2$$

$$12) \frac{5x-1}{6} + \frac{2x+3}{3} = 1 - \frac{\frac{1}{3}-3x}{2}$$

$$13) \frac{3}{x} - \frac{x}{3} + 1 = \frac{5}{2x} - \frac{2x}{6}$$

$$14) \frac{x+1}{x-1} + \frac{2}{x+2} - 1 = \frac{6}{x^2+x-2}$$

$$15) \frac{5x+3}{2x^2+3x} - 1 = \frac{1}{x} - \frac{2x}{2x+3}$$

$$16) \frac{3x+2}{4-9x^2} = \frac{x+1}{2-3x} + \frac{x-1}{2+3x}$$

$$17) \frac{x^2-4}{x^2+4x+4} - 2 = \frac{3-x}{x+2}$$

$$18) \frac{x+3}{x-5} + \frac{7x+5}{x^2+3x-40} = \frac{x-4}{x+8}$$

$$19) \frac{2x+1}{9-x^2} - \frac{4}{x-3} = \frac{1-2x}{x+3} - \frac{2x}{3-x}$$

$$20) \frac{6}{1-x^2} = \frac{4}{(1+x)^2} - \frac{10}{(x-1)^2}$$

Výsledky:

$$1) K = \{5\}; 2) K = \emptyset; 3) K = R; 4) K = \left\{ -\frac{5}{8} \right\}; 5) K = \left\{ \frac{4}{7} \right\};$$

$$6) K = \left\{ -\frac{44}{3} \right\}; 7) K = R; 8) K = \emptyset; 9) K = \left\{ \frac{95}{52} \right\}; 10) K = \{7\};$$

$$11) K = \left\{ \frac{19}{2} \right\}; 12) K = R; 13) K = \left\{ -\frac{1}{2} \right\}; 14) K = \emptyset; 15) K = R \setminus \left\{ 0; -\frac{3}{2} \right\};$$

$$16) K = \left\{ \frac{2}{7} \right\}; 17) K = \emptyset; 18) K = \left\{ -\frac{1}{3} \right\}; 19) K = \left\{ -\frac{10}{19} \right\}; 20) K = \left\{ -\frac{3}{7} \right\}$$