

5.18

$$|3x - 4| = \frac{1}{2}$$

$$\text{реш: } 3x - 4 = \frac{1}{2}$$

$$3x = \frac{9}{2}$$

$$x = 1,5$$

$$3x - 4 = -\frac{1}{2}$$

$$3x = \frac{7}{2}$$

$$x = \frac{7}{2} \cdot \frac{1}{3} = \frac{7}{6}$$

5.20

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

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

$$x^2 - 2x + 4 = 0$$

$$D = \frac{4 - 4 \cdot 1 \cdot 4}{2}$$

$$D = -12$$

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

$$x^2 - 2x + 2 = 0$$

$$D = 4 - 8$$

$$D = -4$$

нет решений в области \mathbb{R}

5.22

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

$$\sqrt{(x-2)^2} + x - 2 = 0$$

$$x-2 + x-2 = 0$$

$$2x = 4$$

$$x = 2$$

$$|x-2| + x = 2$$

$$x-2 + x = 2$$

$$2x = 4$$

$$x = 2$$

$$x-2 + x = -2$$

$$2x = 0$$

$$x = 0$$

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

$$|x-2| = -x + 2$$

$$x-2 \geq 0$$

and

$$x-2 < 0$$

$$x \geq 2$$

$$x < 2$$

$$x-2 = -x+2$$

$$2x = 4$$

$$x = 2$$

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

$$x+2 + x-2 = 0$$

$$2x = 0, x = 0$$

$$x \leq 2$$

5.23)

$$|x-2| \geq 1$$

$$x-2 \geq 1$$

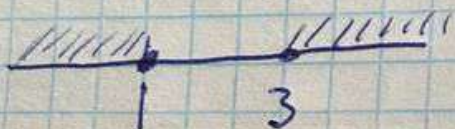
$$x \geq 3$$

или

~~$$x-2 \geq 1$$~~

$$x-2 \leq -1$$

$$x \leq 1$$



$$(-\infty; 1] \cup [3; +\infty)$$

5.24)

$$|x^2 - 7x + 12| \geq x^2 - 7x + 12$$

$$x^2 - 7x + 12 \geq x^2 - 7x + 12$$

что

не имеет решения

$$x^2 - 7x + 12$$

или

$$x^2 - 7x + 12 < 0$$

$$-x^2 + 7x - 12 > x^2 - 7x + 12$$

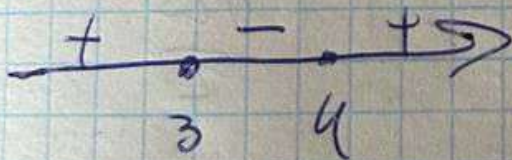
$$2x^2 - 14x + 24 < 0$$

$$x^2 - 7x + 12 < 0$$

$$x_{1,2} = \frac{7 \pm \sqrt{49 - 4 \cdot 12}}{2}$$

$$x_1 = \frac{7 - \sqrt{49 - 4 \cdot 12}}{2} = \frac{7 - 1}{2} = 3$$

$$x_2 = \frac{7 + \sqrt{49 - 4 \cdot 12}}{2} = \frac{7 + 1}{2} = 4$$



$$x \in (3; 4)$$

Ex. 25

$$x^2 + 2\sqrt{(x+3)^2} - 10 \leq 0$$

$$x^2 + 2|x+3| - 10 \leq 0$$

$$2|x+3| \leq 10 - x^2$$

$$\textcircled{1} 2x+6 \leq 10 - x^2$$

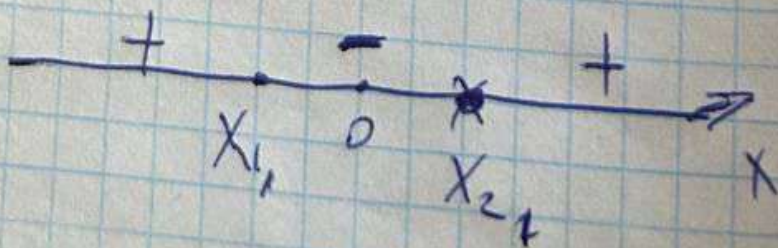
$$x^2 + 2x - 4 \leq 0$$

$$x_1 = \frac{-2 - \sqrt{4+16}}{2} = -1 - \frac{\sqrt{20}}{2}$$

$$x_2 = \frac{-2 + \sqrt{20}}{2} = -1 + \frac{\sqrt{20}}{2}$$

$$x_1 = -1 - \sqrt{5}$$

$$x_2 = -1 + \sqrt{5}$$

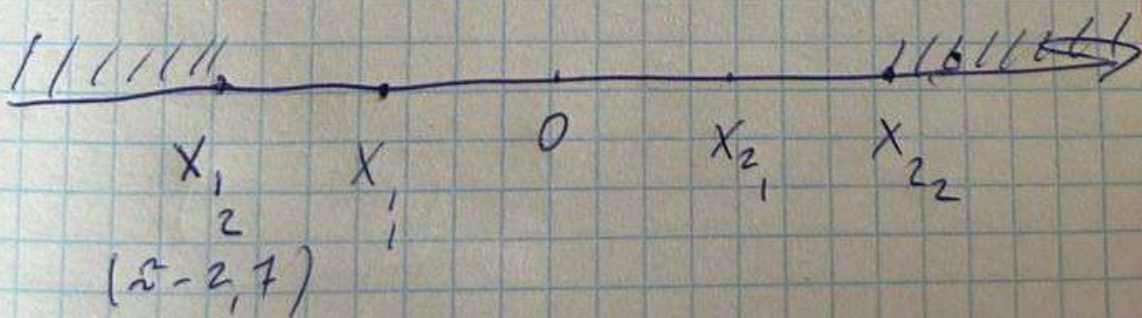
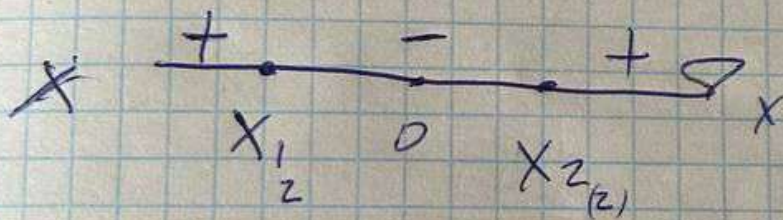


$$\textcircled{2} \quad -2x - 3 \leq 10 - x^2$$

$$x^2 - 2x - 13 \leq 0$$

$$x_1 = \frac{2 - \sqrt{4 + 52}}{2} = 1 - \frac{\sqrt{56}}{2} = 1 - \sqrt{14}$$

$$x_2 = \frac{2 + \sqrt{4 + 52}}{2} = 1 + \frac{\sqrt{56}}{2} = 1 + \sqrt{14}$$



$$(-\infty; 1 - \sqrt{14}] \cup [1 + \sqrt{14}; +\infty)$$