

Домашнее задание

$$1. \sqrt{x+2} > -1$$

$$2. \sqrt{5x-3} \leq -3$$

$$3. \sqrt{x^2+3x-4} > -2$$

$$4. \sqrt{x^2+5} \leq -4$$

$$5. \sqrt{\frac{x^2+2x-3}{x+2}} \geq -1$$

$$6. \sqrt{\frac{x-1}{x^2-4}} < -3$$

$$7. \sqrt[3]{x+2} \leq -5$$

$$8. \sqrt{x^2-3x+2} > 0$$

$$9. \sqrt{\frac{x-1}{2x+1}} \leq 0$$

$$10. \sqrt{x^2-4x+3} \leq 0$$

11.

$$12. \sqrt{x-3} > 5$$

$$13. \sqrt{x^2-3x} \geq 2$$

$$14. \sqrt{3x-1} \geq 2$$

$$15. \sqrt{\frac{2x-1}{x-2}} > 1$$

$$16. \sqrt{\frac{x^2}{x-1}} > 2$$

$$17. \sqrt{2x+4} \leq 3$$

$$18. \sqrt{x-7} < 1$$

$$19. \sqrt{9-24x+16x^2} \leq 7$$

$$20. \sqrt{-x^2+5x} < 2$$

$$21. \sqrt{\frac{2x^2-7x-4}{x-4}} < \frac{1}{2}$$

$$22. \sqrt{\frac{1-x}{2x-5}} < 3$$

$$23. \sqrt{x+2} \geq \sqrt{4-x^2}$$

$$24. \sqrt{x+1} \geq \sqrt{2x-1}$$

$$25. \sqrt{9x-20} < x$$

$$26. \sqrt{2x-1} \leq x-2$$

$$27. \sqrt{x+61} < x+5$$

$$28. \sqrt{x+78} \leq x+6$$

$$29. x > \sqrt{24-5x}$$

$$30. \sqrt{3x-x^2} \leq 4-x$$

$$31. 1 - \sqrt{13+3x^2} > 2x$$

$$32. \sqrt{x^2+3x+3} < 2x+1$$

$$33. \sqrt{2x^2-3x-5} \leq x-1$$

$$\left[\frac{20}{9}, 4\right) \cup (5, +\infty)$$

$$[5, +\infty)$$

$$(3, +\infty)$$

$$[3, +\infty)$$

$$\left(3, \frac{24}{5}\right]$$

$$[0, 3]$$

$$(-\infty, -2)$$

$$\left(\frac{2}{3}, +\infty\right)$$

$$\left[\frac{5}{2}, 3\right]$$

34. $x + 2 < \sqrt{x + 14}$ $[-14, 2)$
35. $x - 3 \leq \sqrt{x - 2}$ $\left[2, \frac{7 + \sqrt{5}}{2}\right]$
36. $4 - x < \sqrt{x^2 - 2x}$ $\left(\frac{8}{3}, +\infty\right)$
37. $\sqrt{(x + 4)(x + 3)} \geq 6 - x$ $\left[\frac{24}{19}, +\infty\right)$
38. $\sqrt{8 + 2x - x^2} > 6 - 3x$ $(1, 4]$
39. $x + 4 \leq \sqrt{-x^2 - 8x - 12}$ $[-6, \sqrt{2} - 4]$
-
40. $\frac{\sqrt{2x^2 + 7x - 4}}{x + 4} < \frac{1}{2}$ $(-\infty, -4) \cup \left[\frac{1}{2}, \frac{8}{7}\right)$
41. $\frac{\sqrt{51 - 2x - x^2}}{1 - x} \leq 1$ $[-1 - 2\sqrt{13}, -5] \cup (1, -1 + 2\sqrt{13}]$
42. $\frac{\sqrt{4 - x^2}}{x + 4} < \frac{1}{2}$ $\left[-2, -\frac{8}{5}\right) \cup (0, 2]$
43. $\frac{\sqrt{x^2 + 4x - 5}}{2x + 3} < 1$ $(-\infty, -5] \cup [1, +\infty)$
44. $\frac{\sqrt{x + 33}}{x + 3} > 1$ $(-3, 3)$
45. $\frac{\sqrt{-2 - 3x - x^2}}{x + \frac{3}{2}} \geq 2$ $\left(-\frac{3}{2}, \frac{-15 + \sqrt{5}}{10}\right]$
46. $\frac{\sqrt{1 - x^2}}{3 - x} > \frac{1}{3}$ $\left(0, \frac{3}{5}\right)$
47. $\frac{\sqrt{2x - x^2}}{1 - x} \geq 1$ $\left[\frac{2 - \sqrt{2}}{2}, 1\right)$
-
48. $(x^2 - 1)\sqrt{x^2 - x - 2} \geq 0$ $(-\infty, -1] \cup [2, +\infty)$
49. $(x - 1)\sqrt{x^2 + x - 2} \geq 0$ $\{-2\} \cup [1, +\infty)$
50. $\frac{\sqrt{2x^2 + 15x - 17}}{10 - x} \geq 0$ $\left(-\infty, -\frac{17}{2}\right] \cup [1, 10)$
51. $\frac{\sqrt{8 - 2x - x^2}}{x + 10} \leq \frac{\sqrt{8 - 2x - x^2}}{2x + 9}$ $\{2\} \cup [-4, 1]$

52. $\frac{\sqrt{3x+2-2x^2}}{|x+1|-|x-3|} \geq 0$ $\left\{-\frac{1}{2}\right\} \cup (1, 2]$
53. $\sqrt{x^2-3x+2} \geq \sqrt{x-3}+2\sqrt{x}$ $[7, +\infty)$
54. $\sqrt{(x-3)(2-x)} < \sqrt{4x^2+12x+11}$ $[2, 3]$
55. $\sqrt[3]{\frac{3}{x+1} + \frac{7}{x+2}} < \sqrt[3]{\frac{6}{x-1}}$ $(-\infty, -2) \cup \left(-\frac{5}{4}, -1\right) \cup (1, 5)$
56. $\sqrt{4-\sqrt{1-x}} > \sqrt{2-x}$ $\left(\frac{-5+\sqrt{13}}{2}, 1\right]$
57. $\sqrt{1-3x}-\sqrt{5+x} > 1$ $\left[-5, \frac{-9-\sqrt{61}}{4}\right)$
58. $3\sqrt{x}-\sqrt{x+3} > 1$ $(1, +\infty)$
59. $|\sqrt{x+2}-\sqrt{x+3}| \leq 1$ $[-2, +\infty)$
60. $\sqrt{x^2+3x+2} < 1+\sqrt{x^2-x+1}$ $(-\infty, -2] \cup \left[-1, \frac{-1+\sqrt{13}}{6}\right)$
61. $\sqrt{5+x^2}-\sqrt{x-2} \geq x+1$ $\{2\}$
62. $\sqrt{x+3}+\sqrt{x+2}-\sqrt{2x+4} > 0$ $[-2, +\infty)$
63. $\sqrt{3x^2+5x+7}-\sqrt{3x^2+5x+2} > 1$ $(-2, -1] \cup \left[-\frac{2}{3}, \frac{1}{3}\right)$
64. $\sqrt{3x^2+2x}+\sqrt{14x^2+23x+8} \leq \sqrt{17x^2+25x+8}$ $\left\{0, -\frac{8}{7}\right\}$
65. $\sqrt{x^3+x^2-4x+1} \geq |x-2|$ $[\sqrt[3]{3}, +\infty)$
66. $\frac{x^2-1}{\sqrt{13-x^2}} \geq x-1$ $(-\sqrt{13}, 1] \cup [2, \sqrt{13})$
67. $\sqrt{x+2}-\frac{4}{\sqrt{x+2}} \leq 3$ $(-2, 14]$
68. $\frac{3}{\sqrt{2-x}}-\sqrt{2-x} < 2$ $(-\infty, 1)$
69. $\frac{x+5}{\sqrt{2-x-1}} \geq 0$ $[-5, 1)$
70. $\sqrt{x+2\sqrt{x-1}}+\sqrt{x-2\sqrt{x-1}} > \frac{3}{2}$ $[1, +\infty)$

$$71. \frac{\sqrt{2-x} + 4x - 3}{x} \geq 0$$

$$72. \frac{1}{\sqrt{3-x}} > \frac{1}{x-2}$$

$$73. \frac{\sqrt{x^3 - 1} - 1}{1+x} \leq x$$

$$74. \frac{\sqrt{x^2 + x - 6} + 3x + 13}{x+5} > 1$$

$$75. x\sqrt{x-3} + x^2 + 5 \leq 6x + \sqrt{x-3}$$

$$76. 2 - \sqrt{1-x^2} > \sqrt{4-x^2}$$

$$77. (\sqrt{3+x} + x - 3)(\sqrt{5+4x} + x - 4) \leq 0$$

$$78. (x^2 - 4x + 3)\sqrt{x+1} \geq x^2 - 2x - 3$$

$$79. \sqrt{9 - \frac{9}{x}} < x - \sqrt{x - \frac{9}{x}}$$

$$80. \sqrt{x+5} < 1 + \sqrt{-x-3} + \sqrt{(x+5)(-x-3)}$$

$$81. 2x + \sqrt{x^2 - 9} < \sqrt{x^2 - 2x + 3} \quad ??$$

$$82. \sqrt{81 - x^2} + \sqrt{51 - 14x - x^2} \leq 2\sqrt{66 - 7x - x^2}$$

83. Доказать, что все решения неравенства $\sqrt{x-1} + \sqrt[3]{x^2-1} > 2$ удовлетворяют неравенству $x + 2\sqrt{x-1} + \sqrt[3]{x^4 - 2x^2 + 1} > 1 + 2\sqrt[3]{x^2 - 1}$.

$$(-\infty, -7) \cup (-5, -3] \cup [2, +\infty)$$

$$[3, 4]$$

$$\left[-1, -\frac{\sqrt{15}}{4}\right) \cup \left(\frac{\sqrt{15}}{4}, 1\right]$$

$$\{1\}$$

$$\{-1, 3\}$$

$$\left[-5, -4 + 2\sqrt{\sqrt{5}-2}\right) \quad ??$$