

ЛОГАРИФМИЧЕСКИЕ НЕРАВЕНСТВА

	Решите неравенство	Ответ
1.1	$\log_{\sin 91^\circ}(3x - 8) \geq \log_{\sin 89^\circ} 4$	$(2\frac{2}{3}; 4]$
1.2	$\log_{\text{tg} 41^\circ}(2x - 3) \geq \log_{\text{ctg} 49^\circ} 5$	$(\frac{3}{2}; 4]$
2.1	$\log_{\frac{1}{3}}(x + 1) > \log_3(x - 2)$	$(2; \frac{1 + \sqrt{13}}{2})$
2.2	$\log_2(x - 1) < \log_{\frac{1}{2}}(x + 2)$	$(1; \frac{\sqrt{13} - 1}{2})$
3.1	$\log_{\frac{1}{2}} x > \log_{\frac{1}{3}} x$	$(0; 1)$
3.2	$\log_5 x < \log_4 x$	$(1; +\infty)$
4.1	$2\log_9(4x^2 + 1) \geq \log_3(3x^2 + 4x + 1)$	$(-\infty; -1) \cup (-\frac{1}{3}; 0] \cup [4; +\infty)$
4.2	$2\log_4(3x^2 + 2) \geq \log_2(2x^2 + 5x + 2)$	$(-\infty; -2) \cup (-\frac{1}{2}; 0] \cup [5; +\infty)$
5.1	$\log_{\frac{1}{2}} x + \log_3 x > 1$	$(0; 3^{\log_{1,5} 0,5})$
5.2	$\log_{\frac{1}{3}} x + \log_2 x > 1$	$(2^{\log_{\frac{2}{3}} \frac{1}{3}}; +\infty)$
6.1	$\log_{x+4}(5x + 20) \leq \log_{x+4}(x + 4)^2$	$(-4; -3) \cup [1; +\infty)$
6.2	$\log_{x-2}(4x - 8) \leq \log_{x-2}(x - 2)^2$	$(2; 3) \cup [6; +\infty)$
7.1	$\log_{10-x}(9,5 - x)^2 > 2\log_{x-8}(x - 8)$	$(9; 9,5) \cup (9,5; 9,75)$
7.2	$\log_{x+2}(x^2 - x + 1) > \log_{\frac{x-3}{x-5}} 1$	$(-1; 0) \cup (1; 3) \cup (5; +\infty)$
8.1	$9^{\frac{\log_1 \log_5 x^2}{9}} < 5^{\frac{\log_1 \log_9 x^2}{5}}$	$(-\infty; -1) \cup (1; +\infty)$
8.2	$3^{\frac{\log_1 \lg x^2}{3}} > 10^{\frac{\log_1 \log_3 x^2}{10}}$	$(-\infty; -1) \cup (1; +\infty)$
9.1	$\log_3^2 x + 2 > 3\log_3 x$	$(0; 3) \cup (9; +\infty)$
9.2	$\log_2^2 x + 6 > 5\log_2 x$	$(0; 4) \cup (8; +\infty)$

10.1	$\log_{0,1}^2 x - 1 \leq 0$	$[0,1; 10]$
10.2	$\lg^2 x - 4 \leq 0$	$[0,01; 100]$
11.1	$\log_4 x^2 + \log_2^2(-x) > 6$	$(-\infty; -4) \cup (-\frac{1}{8}; 0)$
11.2	$\log_2^2 x^2 - 15\log_2(-x) \leq 4$	$[-16; -\sqrt[4]{0,5}]$
12.1	$\log_{\sqrt{11}-\sqrt{5}}(x^2 + 2x + 16 - 2\sqrt{55}) \leq 2$	$[-2; 0]$
12.2	$\log_{\sqrt{13}-\sqrt{6}}(x^2 - 2x + 19 - 2\sqrt{78}) \leq 2$	$[0; 2]$
13.1	$ \log_3(x+2) > 2$	$(-2; -\frac{17}{9}) \cup (7; +\infty)$
13.2	$ \log_2(x+1) > 3$	$(-1; -\frac{7}{8}) \cup (7; +\infty)$
14.1	$\log_2^2(4+3x-x^2) + 7\log_{0,5}(4+3x-x^2) + 10 > 0$	$(-1; 0) \cup (3; 4)$
14.2	$\log_5^2(25-x^2) - 3\log_5(25-x^2) + 2 \geq 0$	$(-5; -\sqrt{20}] \cup \{0\} \cup [\sqrt{20}; 5)$
15.1	$\log_2^2(-\log_2 x) + \log_2 \log_2^2 x \leq 3$	$[1/4; 1/\sqrt[8]{2}]$
15.2	$\log_{0,5}^2(-\log_3 x) - \log_{0,5} \log_3^2 x \leq 3$	$[1/9; 1/\sqrt[8]{3}]$
16.1	$\log_{x+1}(2x-5) + \log_{2x-5}(x+1) \leq 2$	$(\frac{5}{2}; 3) \cup \{6\}$
16.2	$\log_{3x+1}(4x-6) + \log_{4x-6}(3x+1) \leq 2$	$(\frac{3}{2}; \frac{7}{4}) \cup \{7\}$
17.1	$x^2 \log_{16} x \geq \log_{16} x^5 + x \log_2 x$	$(0; 1] \cup [5; +\infty)$
17.2	$x^2 \log_{25} x \geq \log_{25} x^3 + x \log_5 x$	$(0; 1] \cup [3; +\infty)$
18.1	$2^{\log_2^2 x} + x^{\log_2 x} \leq 256$	$[2^{-\sqrt{7}}; 2^{\sqrt{7}}]$
18.2	$5^{\log_5^2 x} + x^{\log_5 x} \geq 2\sqrt[4]{5}$	$(0; \frac{1}{\sqrt{5}}] \cup [\sqrt{5}; +\infty)$
19.1	$\frac{\log_2 x - 5}{1 - 2\log_2 x} \geq 2\log_2 x$	$(0; 0,5) \cup (\sqrt{2}; \sqrt[4]{32})$
19.2	$\frac{-8\log_3 x - 9}{1 - 4\log_3 x} \geq \log_3 x$	$(0; \sqrt[4]{1/27}) \cup (\sqrt[4]{3}; 27]$

20.1	$\frac{5lg^2x - 1}{lg^2x - 1} \geq 1$	$(0; 1/10) \cup \{1\} \cup (10; +\infty)$
20.2	$\frac{4lg^2x - 4}{lg^2x - 4} \geq 1$	$(0; 1/100) \cup \{1\} \cup (100; +\infty)$
21.1	$\log_2(x^2 - 4) - 3\log_2\frac{x+2}{x-2} > 2$	$(-\infty; -2) \cup (6; +\infty)$
21.2	$\log_3(x^2 - 9) - 3\log_3\frac{x+3}{x-3} > 2$	$(-\infty; -3) \cup (9; +\infty)$
22.1	$2\log_2\frac{x+1}{x+1,5} + \log_2(x+1,5)^2 \geq 2$	$(-\infty; -3] \cup [1; +\infty)$
22.2	$2\log_2\frac{x-1}{x+1,3} + \log_2(x+1,3)^2 \geq 2$	$(-\infty; -1,3) \cup [3; +\infty)$
23.1	$\log_5^2\frac{(x-4)^2(x-3)}{48} > \log_{0,2}^2\frac{x-3}{3}$	$(3; 4) \cup (4; 7) \cup (8; +\infty)$
23.2	$lg^2\frac{(x+2)^2(x+5)}{5} < lg^2\frac{x+5}{20}$	$(-5; -2,5) \cup (-1,5; 0)$
24.1	$\log_2(x^2 + 4x) + \log_{0,5}\frac{x}{4} + 2 \geq \log_2(x^2 + 3x - 4)$	$(1; 17]$
24.2	$\log_3(x^2 + 7x + 10) + \log_{\frac{1}{3}}\frac{x+5}{9} + 1 \geq \log_3(3x^2 + 16x + 20)$	$(-2; \frac{17}{3}]$
25.1	$\frac{\ln(9y^2 - 3y + 1)}{\ln(8y^2 - 6y + 1)^3} \leq \frac{\log_{53}9}{\log_5 9}$	$[-3; 0) \cup (0; \frac{1}{4}) \cup (\frac{1}{2}; \frac{3}{4})$
25.2	$\frac{\ln(3y^2 - 2y + 1)}{\ln(5y^2 - 6y + 1)^5} \geq \frac{\log_{75}3}{\log_7 3}$	$(\frac{6}{5}; 2]$
26.1	$\frac{\log_{11}(3x + 2\sqrt{x+1} + 2)}{\log_{11}(5x + 3\sqrt{x+1} + 3)^3} \geq \frac{\log_{27}11}{\log_3 11}$	$[-0,75; \frac{-11 - 3\sqrt{69}}{50})$
26.2	$\frac{\lg(3x + 2\sqrt{x} - 2)}{\lg(5x + 3\sqrt{x} - 3)^3} \geq \frac{\log_{27}10}{\log_3 10}$	$(\frac{8 - 2\sqrt{7}}{9}; \frac{49 - 3\sqrt{89}}{50})$

27.1	$\log_{5-x}(x+3) \leq 0$	$(-3; -2] \cup (4; 5)$
27.2	$\log_{7-x}(2x+9) \leq 0$	$(-4,5; -4] \cup (6; 7)$
28.1	$\log_{6x^2-x-1}(2x^2-5x+3) \geq 0$	$(-\infty; -\frac{1}{2}) \cup (\frac{1}{2}; \frac{2}{3}) \cup [2; +\infty)$
28.2	$\log_{6x^2+x-1}(3x^2-7x+3) \geq 0$	$(-\infty; -\frac{2}{3}) \cup (\frac{1}{3}; \frac{1}{2}) \cup [2; +\infty)$
29.1	$\log_x 2(\frac{1}{x} + \frac{2}{x^2}) \leq 0$	$(-2; -1) \cup (-1; 0) \cup (0; 1) \cup [2; +\infty)$
29.2	$\log_{x^2}(\frac{2}{x} + \frac{3}{x^2}) \leq 0$	$(-1,5; -1) \cup (-1; 0) \cup (0; 1) \cup [3; +\infty)$
30.1	$\log_{\log_x 2x}(6x-2) \geq 0$	$(\frac{1}{3}; \frac{1}{2}) \cup (1; +\infty)$
30.2	$\log_{\log_{2x} x}(2x-6) \geq 0$	$(3; 3,5]$
31.1	$\log_{2x} 0,25 \leq \log_2 32x - 1$	$[\frac{1}{8}; \frac{1}{4}] \cup (\frac{1}{2}; +\infty)$
31.2	$\log_{2x} 0,5 \geq \log_2 16x - 1$	$(0; 0,5)$
32.1	$\frac{\log_2(2x^2-13x+20)-1}{\log_3(x+7)} \leq 0$	$(-7; -6) \cup [2; 2,5) \cup (4; 4,5]$
32.2	$\frac{\log_2(x^2-x)-1}{\log_5(x+3)} \leq 0$	$(-3; -2) \cup [-1; 0) \cup (1; 2]$
33.1	$\log_2 16x \geq \log_{0,5x} 2 \cdot \log_4 16x^4$	$[\frac{1}{8}; 2) \cup [4; +\infty)$
33.2	$\log_2 0,5x \geq \log_{16x} 2 \cdot \log_4 16x^4$	$(\frac{1}{16}; \frac{1}{8}] \cup [4; +\infty)$
34.1	$\frac{\log_2(8x) \cdot \log_{0,125x} 2}{\log_{0,5x} 16} \leq \frac{1}{4}$	$(0; 0,5] \cup [1; 2) \cup (2; 8)$
34.2	$\frac{\log_2(8x) \cdot \log_{0,125x} 2}{\log_{0,25x} 16} \leq \frac{1}{4}$	$(0; \frac{1}{2\sqrt{3}}] \cup [2\sqrt{3}; 4) \cup (4; 8)$

35.1	$\frac{\log_x 2x^{-1} \cdot \log_x 2x^2}{\log_{2x} x \cdot \log_{2x-2} x} < 40$	$(0; \frac{1}{2}) \cup (\frac{1}{2}; \frac{1}{\sqrt{2}}) \cup (\sqrt[3]{2}; \sqrt{2}) \cup (\sqrt{2}; +\infty)$
35.2	$\frac{\log_x 3x^{-1} \cdot \log_x 3x^2}{\log_{3x} x \cdot \log_{3x-2} x} < 40$	$(0; \frac{1}{3}) \cup (\frac{1}{3}; \frac{1}{\sqrt[3]{3}}) \cup (\sqrt[3]{3}; \sqrt{3}) \cup (\sqrt{3}; +\infty)$
36.1	$\frac{\log_{x+3}(x^2 - x + 30)}{\log_{x+3}(x^2 - x - 1)} \geq \frac{\lg(x^4 - 2x^3 + x^2)}{\lg(x^2 - x - 1)}$	$(-2; -1) \cup (2; 3]$
36.2	$\frac{\log_{x+5}(x^2 + 2x + 56)}{\log_{x+5}(x^2 + 2x - 2)} \geq \frac{\log_2(x^4 + 4x^3 + 4x^2)}{\log_2(x^2 + 2x - 2)}$	$(-4; -3) \cup (1; 2]$
37.1	$\log_x(x^3 - 8) \leq \log_x(x^3 + 2x - 13)$	$[2.5; +\infty)$
37.2	$\log_x(x^3 - 1) \leq \log_x(x^3 + 2x - 4)$	$[1.5; +\infty)$
38.1	$\log_{\frac{x}{x-3}} 7 \leq \log_{\frac{x}{3}} 7$	$(3; 6]$
38.2	$\log_{\frac{x}{x-1}} 5 \leq \log_{\frac{x}{2}} 5$	$(2; 3]$
39.1	$\log_{3x-3} 3 + \log_{(x-1)2} 27 \geq 2$	$(\frac{4}{3}; 1 + \frac{1}{\sqrt[4]{27}}] \cup (2; 4]$
39.2	$\log_{2x+2} 2 + \log_{(x+1)2} 8 \geq 2$	$(-\frac{1}{2}; \frac{1}{\sqrt[4]{8}} - 1] \cup (0; 1]$
40.1	$\log_{\frac{\sqrt{2} + \sqrt{13}}{5}} 4 \geq \log_{\frac{\sqrt{2} + \sqrt{13}}{5}} (5 - 2^x)$	$[0; \log_2 5)$
40.2	$\log_{\frac{\sqrt{3} + \sqrt{19}}{6}} 5 \geq \log_{\frac{\sqrt{3} + \sqrt{19}}{6}} (7 - 2^x)$	$[1; \log_2 7)$
41.1	$\log_2^2(3x - 1) + \log_{3x-1}^2 2 - \log_2(3x - 1)^2 - \log_{3x-1} 4 + 2 \leq 0$	$\{1\}$
41.2	$\log_2^2(3x + 1) + \log_{3x+1}^2 2 - 2\log_2(3x + 1)^2 - 2\log_{3x+1} 4 + 6 \leq 0$	$\{\frac{1}{3}\}$
42.1	$\log_{4-x}(x + 4) \cdot \log_{x+5}(6 - x) \leq 0$	$(-4; -3] \cup (3; 4)$
42.2	$\log_{2-x}(x + 2) \cdot \log_{x+3}(3 - x) \leq 0$	$(-2; -1] \cup (1; 2)$

43.1	$(x - 1) \log_{x+3}(x + 2) \cdot \log_3(x + 3)^2 \leq 0$	$[-1; 1]$
43.2	$(5x - 13) \cdot \log_{2x-5}(x^2 - 6x + 10) \geq 0$	$(\frac{5}{2}; \frac{13}{5}] \cup (3; +\infty)$
44.1	$0,5 \log_{x-2}(x^2 - 10x + 25) + \log_{5-x}(-x^2 + 7x - 10) \geq 3$	$(3; 4)$
44.2	$0,5 \log_{x-1}(x^2 - 8x + 16) + \log_{4-x}(-x^2 + 5x - 4) \geq 3$	$(2; 3)$
45.1	$\log_{3-x} \frac{x + 4}{(x - 3)^2} \geq -2$	$[-3; 2)$
45.2	$\log_{5-x} \frac{x + 2}{(x - 5)^4} \geq -4$	$[-1; 4)$
46.1	$\log_{5-x} \frac{x + 4}{(x - 5)^{10}} \geq -10$	$[-3; 4)$
46.2	$\log_{4-x} \frac{x + 1}{(x - 4)^4} \geq -4$	$[0; 3)$
47.1	$\log_{(\sqrt{7})^{x+\frac{1}{2}}} 7^{\frac{2}{x^2+x}} \leq \frac{4}{2x+1}$	$[-2; -1) \cup (-\frac{1}{2}; 0) \cup [1; +\infty)$
47.2	$\log_{(\sqrt{5})^{x+\frac{1}{3}}} 5^{\frac{4}{x^2+3x}} \leq \frac{6}{3x+1}$	$[-4; -3) \cup (-\frac{1}{3}; 0) \cup [1; +\infty)$
48.1	$\log_{x+6} \left(\frac{x-4}{x} \right)^2 + \log_{x+6} \frac{x}{x-4} \leq 1$	$(-6; -5) \cup [-4; -1] \cup (4; +\infty)$
48.2	$\log_{x+7} \left(\frac{3-x}{x+1} \right)^2 \leq 1 - \log_{x+7} \frac{x+1}{x-3}$	$(-7; -6) \cup [-5; -2] \cup (3; +\infty)$
49.1	$\log_{3x} \frac{1}{27} \cdot \log_3 27x + 9 \geq 0$	$(0; \frac{1}{3}) \cup [1; +\infty)$
49.2	$\log_{2x} \frac{1}{8} \cdot \log_2 8x + 9 \geq 0$	$(0; \frac{1}{2}) \cup [1; +\infty)$

50.1	$\frac{\log_5(x^2 - 4x - 11)^2 - \log_{11}(x^2 - 4x - 11)^3}{2 - 5x - 3x^2} \geq 0$	$(-\infty; -2) \cup (-2; 2 - \sqrt{15}) \cup [6; +\infty)$
50.2	$\frac{\log_2(x^2 - x - 2)^5 - \log_5(x^2 - x - 2)^3}{-3 - 4x - x^2} \geq 0$	$(-3; \frac{1 - \sqrt{13}}{2}] \cup (2; \frac{1 + \sqrt{13}}{2}]$
51.1	$\frac{\log_{1-2x}((x+1)(1-4x+4x^2))}{\log_{x+1}(1-2x)} \leq -1$	$\{-0,5\}$
51.2	$\frac{\log_{1-x}((3x+1)(1-2x+x^2))}{\log_{3x+1}(1-x)} \leq -1$	$\left\{\frac{2}{3}\right\}$
52.1	$\frac{\log_{2(x-1)^2-1}(\log_{2x^2-2x+3}(x^2-4x+3))}{\log_{2(x-1)^2-1}(x^2+4x+5)} \geq 0$	$(-2; 0)$
52.2	$\frac{\log_{2(x+1)^2-1}(\log_{2x^2+2x+3}(x^2-2x))}{\log_{2(x+1)^2-1}(x^2+6x+10)} \geq 0$	$(-3; -2) \cup (-2; -1)$
53.1	$\frac{\log_{7x+3}49}{\log_{7x+3}(-49x)} \leq \frac{1}{\log_7 \log_{\frac{1}{7}} 7^x}$	$[-49; -3) \cup (-3; -1) \cup (-\frac{1}{49}; 0)$
53.2	$\frac{\log_{3x+4}27}{\log_{3x+4}(-81x)} \leq \frac{1}{\log_3 \log_{\frac{1}{3}} 3^x}$	$[-9; -4) \cup (-4; -1) \cup (-\frac{1}{81}; 0)$
54.1	$\log_x(\sqrt{x^2+2x-3}+2) \cdot \log_5(x^2+2x-2) \geq \log_x 4$	$[2\sqrt{2}-1; +\infty)$
54.2	$\log_x(\sqrt{x^2+x-2}+1) \cdot \log_7(x^2+x+1) \leq \log_x 3$	$(1; 2]$
55.1	$\frac{\log_4(2-x) - \log_{14}(2-x)}{\log_{14}x - \log_{49}x} \leq \log_4 49$	$(0; 1) \cup (1; 2)$
55.2	$\frac{\log_9(2-x) - \log_{15}(2-x)}{\log_{15}x - \log_{25}x} \leq \log_9 25$	$(0; 1) \cup (1; 2)$

56.1	$\log_2\left(\left(7^{-x^2}-3\right)\left(7^{-x^2+16}-1\right)\right)+\log_2\frac{7^{-x^2}-3}{7^{-x^2+16}-1}>\log_2\left(7^{7-x^2}-2\right)^2$	$(-\infty; -4) \cup (4; +\infty)$
56.2	$\log_2\left(\left(6^{-x^2}-3\right)\left(6^{-x^2+16}-1\right)\right)+\log_2\frac{6^{-x^2}-3}{6^{-x^2+16}-1}>\log_2\left(6^{7-x^2}-2\right)^2$	$(-\infty; -4) \cup (4; +\infty)$
57.1	$\frac{\log_4(2^x-1)}{x-1} \leq 1$	$(1; +\infty)$
57.2	$\frac{\log_4(2^x-2)}{x-1,5} \leq 1$	$(1,5; +\infty)$
58.1	$5^{- x-2 } \cdot \log_2(4x-x^2-2) \geq 1$	$\{2\}$
58.2	$6^{- x-3 } \cdot \log_3(6x-x^2-6) \geq 1$	$\{3\}$
59.1	$(2x+1)\log_3 10 + \log_5\left(4^x - \frac{1}{10}\right) \leq 2x-1$	$(-\log_4 10; -\log_4 5]$
59.2	$2x\log_3 6 + \log_3(4^x-2) \leq 2x+1$	$(0,5; \log_4 3]$
60.1	$\frac{(x^2+x)\lg(x^2+2x-2)}{ x-1 } \geq \frac{\lg(-x^2-2x+2)^2}{x-1}$	$(-\infty; -3] \cup (1; +\infty)$
60.2	$\frac{(x^2+x)\log_8(x^2+4x-4)}{ x-2 } \geq \frac{\log_8(-x^2-4x+4)^6}{x-2}$	$(-\infty; -5] \cup [1; 2) \cup (2; +\infty)$
61.1	$\frac{1-\sqrt{1-4\log_8^2 x}}{\log_8 x} < 2$	$[\frac{\sqrt{2}}{4}; 1) \cup (1; \sqrt{8})$
61.2	$\frac{1-\sqrt{1-8\log_2^2 x}}{2\log_2 x} < 1$	$[2^{-\frac{\sqrt{2}}{4}}; 1) \cup (1; 2^{\frac{1}{3}})$
62.1	$(3^{\frac{x-2}{2}}-1)\sqrt{3^x-10\sqrt{3^x}+9} \geq 0$	$\{0\} \cup [4; +\infty)$
62.2	$(2^{\frac{x-4}{2}}-1)\sqrt{2^x-10\sqrt{2^x}+16} \geq 0$	$\{2\} \cup [6; +\infty)$
63.1	$\sqrt{2 \cdot 9^x - 7 \cdot 3^{x+1} + 10} \geq 3^x - 10$	$(-\infty; -\log_3 2] \cup [\log_3 10; +\infty)$
63.2	$\sqrt{3 \cdot 4^x - 5 \cdot 2^{x+1} + 3} \geq 2^x - 3$	$(-\infty; -\log_2 3] \cup [\log_2 3; +\infty)$

64.1	$\sqrt{8-2^x} \cdot \log_2 \frac{4-x}{x+2} \geq 0$	$(-2; 1] \cup \{3\}$
64.2	$\sqrt{27-3^x} \cdot \log_3 \frac{9-x}{x+3} \leq 0$	$\{3\}$
65.1	$\frac{8 \cdot 7^x - 4^{x \log_2 7} - 11}{(2x-1)^2} \geq 0$	$[\log_7(4-\sqrt{5}); \frac{1}{2}) \cup (\frac{1}{2}; \log_7(4+\sqrt{5})]$
65.2	$\frac{27 \cdot 5^x - 9^{x \log_3 5} - 180}{(3x-5)^2} \geq 0$	$[\log_5 12; \frac{5}{3}) \cup (\frac{5}{3}; \log_5 15]$
66.1	$(x^2+1)^{\lg(7x^2-3x+1)} + (7x^2-3x+1)^{\lg(x^2+1)} \leq 2$	$[0; \frac{3}{7}]$
66.2	$(x^2+2)^{\lg(7x^2-4x+1)} + (7x^2-4x+1)^{\lg(x^2+2)} \leq 2$	$[0; \frac{4}{7}]$
67.1	$\log_{x-1} \sqrt{x+2} \cdot \log_3(x^2-2x+1) \geq \log_9(10-x)$	$(1; 2) \cup (2; 10)$
67.2	$\log_{x-2} \sqrt{x+1} \cdot \log_2(x^2-4x+4) \geq \log_4(5-x)$	$(2; 3) \cup (3; 5)$
68.1	$\frac{\log_3(9x) - 13}{\log_3^2 x + \log_3 x^4} \leq 1$	$(0; 1/81) \cup (1; +\infty)$
68.2	$\frac{\log_6(36x) - 1}{\log_6^2 x - \log_6 x^3} \geq 0$	$[\frac{1}{6}; 1) \cup (216; +\infty)$
69.1	$\frac{\log_4(16x^4) + 11}{\log_4^2 x - 9} \geq -1$	$(0; 1/64) \cup \{1/16\} \cup (64; +\infty)$
69.2	$\frac{\log_7(49x^2) - 7}{\log_7^2 x - 4} \leq 1$	$(0; 1/49) \cup \{7\} \cup (49; +\infty)$

70.1	$\frac{\log_4(64x)}{\log_4 x - 3} + \frac{\log_4 x - 3}{\log_4(64x)} \geq \frac{\log_4 x^4 + 16}{\log_4^2 x - 9}$	$(0; 1/64) \cup \{4\} \cup (64; +\infty)$
70.2	$\frac{\log_3(81x)}{\log_3 x - 4} + \frac{\log_3 x - 4}{\log_3(81x)} \geq \frac{24 - \log_3 x^8}{\log_3^2 x - 16}$	$(0; 1/81) \cup \{1/9\} \cup (81; +\infty)$
71.1	$1 + \frac{10}{\log_2 x - 5} + \frac{16}{\log_2^2 x - \log_2(32x^{10}) + 30} \geq 0$	$(0; \frac{1}{8}] \cup [8; 32) \cup (32; +\infty)$
71.2	$1 + \frac{6}{\log_3 x - 3} + \frac{5}{\log_3^2 x - \log_3(27x^6) + 12} \geq 0$	$(0; \frac{1}{9}] \cup [9; 27) \cup (27; +\infty)$
72.1	$\frac{\log_3 x}{\log_3(\frac{x}{27})} \geq \frac{2}{\log_3 x} + \frac{5}{\log_3^2 x - \log_3(x^3)}$	$(0; 1) \cup \{3\} \cup (27; +\infty)$
72.2	$\frac{\log_8 x}{\log_8(\frac{x}{64})} \geq \frac{2}{\log_8 x} + \frac{3}{\log_8^2 x - \log_8(x^2)}$	$(0; 1) \cup \{8\} \cup (64; +\infty)$
73.1	$\frac{10^x}{2(\log_2^2(x+1)^2)\log_3(x+2)} \leq \frac{(15 \cdot 3^x)^x}{9(\log_2^2(x+1)^2)\log_3(x+2)}$	$[\log_3 2 - 2; -1) \cup [1; +\infty)$
73.2	$\frac{14^{1+\lg x}}{7lg^2(100x)lg(0,1x)} \geq \frac{(4 \cdot 2^{\lg(10x)})^{1+\lg x}}{4lg^2(100x)lg(0,1x)}$	$(0; \frac{1}{100}) \cup (\frac{1}{100}; 10^{\log_2 7 - 3}] \cup [1; 10)$
74.1	$\log_{1-\frac{x^2}{37}}(x^2 - 12 x + 37) - \log_{1+\frac{x^2}{37}}(x^2 - 12 x + 37) \geq 0$	$\{-6; 6\}$
74.2	$\log_{1-\frac{x^2}{17}}(x^2 - 8 x + 17) - \log_{1+\frac{x^2}{17}}(x^2 - 8 x + 17) \geq 0$	$\{-4; 4\}$
75.1	$\log_7(2x^2 + 12) - \log_7(x^2 - x + 12) \geq \log_7(2 - \frac{1}{x})$	$(0, 5; \frac{4}{3}] \cup [3; +\infty)$
75.2	$\log_3(x^2 + 2) - \log_3(x^2 - x + 12) \geq \log_3(1 - \frac{1}{x})$	$(1; \frac{3}{2}] \cup [4; +\infty)$
76.1	$\log_5(3x + 1) + \log_5(\frac{1}{72x^2} + 1) \geq \log_5(\frac{1}{24x} + 1)$	$[-\frac{1}{6}; -\frac{1}{24}] \cup (0; +\infty)$
76.2	$\log_3(2x + 1) + \log_3(\frac{1}{32x^2} + 1) \geq \log_3(\frac{1}{16x} + 1)$	$[-\frac{1}{4}; -\frac{1}{16}] \cup (0; +\infty)$

77.1	$\log_2\left(\frac{1}{x} - 1\right) + \log_2\left(\frac{1}{x} + 1\right) \leq \log_2(27x - 1)$	$\left[\frac{1}{3}; 1\right)$
77.2	$\log_3\left(\frac{1}{x} - 1\right) + \log_3\left(\frac{1}{x} + 1\right) \leq \log_3(8x - 1)$	$\left[\frac{1}{2}; 1\right)$
78.1	$2\log_2(1 - 2x) - \log_2\left(\frac{1}{x} - 2\right) \leq \log_2(4x^2 + 6x - 1)$	$\left[\frac{1}{6}; 0,5\right)$
78.2	$2\log_3(1 + 3x) - \log_3\left(\frac{1}{x} + 3\right) \leq \log_3(4x^2 + 6x - 6)$	$[1; \infty)$
79.1	$\log_{\frac{1}{3}}(18 - 9x) < \log_{\frac{1}{3}}(x^2 - 6x + 5) + \log_{\frac{1}{3}}(x + 2)$	$(-2; 1)$
79.2	$\log_4(6 - 6x) < \log_4(x^2 - 5x + 4) + \log_4(x + 3)$	$(-2; 1)$
80.1	$\log_2((x - 1)(x^2 + 3)) \leq \log_2(4x - x^2 - 3) + \log_2(5 - x)$	$(1; 1,5]$
80.2	$\log_{\frac{1}{3}}((4 - x)(x^2 + 29)) \leq \log_{\frac{1}{3}}(x^2 - 10x + 24) + \log_{\frac{1}{3}}(7 - x)$	$[1; 4)$
81.1	$\log_2(x + 1)^2 \cdot \log_{\frac{1}{3}}x^2 - 4\log_2(x + 1) + 4\log_3(-x) + 4 \leq 0$	$\left[-\frac{1}{3}; 0\right)$
81.2	$\log_5(x + 2)^2 \cdot \log_{\frac{1}{2}}x^2 - 4\log_5(x + 2) + 4\log_2(-x) + 4 \leq 0$	$\left[-\frac{1}{2}; 0\right)$
82.1	$x^2\log_{243}(4 - x) \leq \log_3(x^2 - 8x + 16)$	$[-\sqrt{10}; 3] \cup [\sqrt{10}; 4)$
82.2	$x^2\log_{343}(5 - x) \leq \log_7(x^2 - 10x + 25)$	$[-\sqrt{6}; \sqrt{6}] \cup [4; 5)$
83.1		
83.2		

Задания взяты из различных тренировочных и диагностических работ последних лет в формате ЕГЭ, реальных экзаменационных работ, из пособия Корянов А.Г., Прокофьев А.А. Решение неравенств с одной переменной, с сайта РешуЕГЭ и др.