

$$25. \log_{\frac{25-x^2}{16}} \left(\frac{24-2x-x^2}{14} \right) > 1.$$

$$26. \log_{x^2}(x+2) < 1.$$

$$27. \log_{\frac{x}{2}} 8 + \log_{\frac{x}{4}} 8 < \frac{\log_2 x^4}{\log_2 x^2 - 4}.$$

$$28. \log_{\frac{1}{2}}(x+2) \cdot \log_2(x+1) > \log_{(x+2)}(x+1).$$

$$29. \log_5 x + \log_x \frac{x}{3} < \frac{2 - \log_3 x}{\log_3 x} \log_5 x.$$

$$30. \log_{\frac{1}{2}} \left(\log_8 \frac{x^2 - 2x}{x - 3} \right) < 0.$$

$$31. (\log_x 2)(\log_{2x} 2)(\log_2 4x) > 1.$$

✓ Подготовительные задачи

Решите следующие уравнения и неравенства:

$$1. \log_3(x+1) + \log_3(x+3) = 1.$$

$$2. \lg 5 + \lg(x+10) = 1 + \lg(21x-20) - \lg(2x-1).$$

$$3. \lg x - \frac{1}{2} \lg \left(x - \frac{1}{2} \right) = \lg \left(x + \frac{1}{2} \right) - \frac{1}{2} \lg \left(x + \frac{1}{8} \right).$$

$$4. 9^{\log_3(1-2x)} = 5x^2 - 5.$$

$$5. x^{1+\lg x} = 10x.$$

$$6. (\lg x)^2 - 3 \lg x = \lg x^2 - 4.$$

$$7. (\log_2 x)^2 + 2 \log_2 \sqrt{x} = 2.$$

$$8. \log_5 \left(\frac{x+2}{10} \right) = \log_5 \left(\frac{2}{x+1} \right).$$

$$9. 2 \log_4(4-x) = 4 - \log_2(-x-2).$$

$$10. \log_{\frac{1}{2}}(x-1) + \log_{\frac{1}{2}}(x+1) - \log_{\frac{1}{\sqrt{2}}}(7-x) = 1.$$

$$11. \log_{x+1}(x^2 - 3x + 1) = 1.$$

$$12. \log_2 x - 8 \log_{x^2} 2 = 3.$$

$$13. 1 + 2 \log_{(x+2)} 5 = \log_5(x+2).$$

$$14. \log_4 2^{4x} = 2^{\log_{\sqrt{2}} 2}.$$

$$15. \log_2 \left(\frac{x}{4} \right) = \frac{15}{\log_2 \left(\frac{x}{8} \right) - 1}.$$

$$16. \log_{\frac{1}{3}}(5x-1) > 0.$$

$$17. \log_5(3x-1) < 1.$$

$$18. \lg(x^2 - 5x + 7) < 0.$$

$$19. \log_7 \left(\frac{1-2x}{x} \right) \leq 0.$$

$$20. \log_{0,5}^2 x + \log_{0,5} x \leq 2.$$

$$21. \log_2 x \leq \frac{2}{\log_2 x - 1}.$$

$$22. \frac{1}{1+\lg x} + \frac{1}{1-\lg x} > 2.$$

$$23. \log_{\frac{1}{3}}(3x-4) > \log_{\frac{1}{3}}(x-2).$$

$$24. \log_{0,5}(4-x) \geq \log_{0,5} 2 - \log_{0,5}(x-1).$$

$$25. \log_{0,1}(x^2 + x - 2) > \log_{0,1}(x+3).$$

$$26. 1 + \log_2(x-2) > \log_2(x^2 - 3x + 2).$$

$$27. \log_{\frac{1}{3}} [\log_4(x^2 - 5)] > 0.$$

$$28. \log_{\frac{1}{5}}(x^2 - 6x + 18) + 2\log_5(x-4) < 0.$$

$$29. \log_{\frac{1}{3}} x > \log_x 3 - \frac{5}{2}.$$

$$30. \log_5 \sqrt{3x+4} \cdot \log_x 5 > 1.$$