

Задачи типа С1 по модели ЕГЭ 2010

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Решить систему уравнений:

1.
$$\begin{cases} \cos x = 2 - y \\ \sin x = y - 3 \end{cases}$$
2.
$$\begin{cases} \cos x = y + \sqrt{3} \\ \sin x = \sqrt{3}y + 2 \end{cases}$$
3.
$$\begin{cases} \sin x + \cos x = 2y - 5 \\ \sin x - 2\cos x = 1 - y \end{cases}$$
4.
$$\begin{cases} \cos x = \sqrt{3} - y \\ \sin x = \sqrt{3}y - 2 \end{cases}$$
5.
$$\begin{cases} (2^x - 2^{2y})(4^x - 2^{4y}) = 45 \\ 2^x + 4^y = 5 \end{cases}$$
6.
$$\begin{cases} 3^x \cdot 2^y = 576 \\ \log_{\sqrt{2}}(y - x) = 4 \end{cases}$$
7.
$$\begin{cases} x^y = 2^{\frac{1}{y}} \\ x = 64^{\frac{1}{y}} \end{cases}$$
8.
$$\begin{cases} 7^x - 3y = 43 \\ 4y + 2 \cdot 7^x = 106 \end{cases}$$
9.
$$\begin{cases} 3^y + 2\sin \frac{x}{2} = 0 \\ 4\cos^2 x - 8\cos x - 5 = 0 \end{cases}$$
10.
$$\begin{cases} 3^y + \operatorname{tg} x = 0 \\ 4\cos^2 x - 4\cos x - 3 = 0 \end{cases}$$

11.
$$\begin{cases} 6\sin x + 7\log_y 3 = -10 \\ -5\sin x + 2\log_y 3 = \frac{1}{2} \end{cases}$$
12.
$$\begin{cases} 2x^2 + 2x - \cos 2y - \sin y = 12 \\ x - \sin y = 1 \end{cases}$$
13.
$$\begin{cases} 4^x + 2^y = 12 \\ \sqrt{3x - 2y} = \sqrt{5 + x - 3y} \end{cases}$$
14.
$$\begin{cases} 2x^2 + \cos 2y + 2\sin y = 3 \\ x - 2\sin y = -3 \end{cases}$$
15.
$$\begin{cases} \cos y \cdot \sqrt{4\sin x + 1} = 0 \\ \cos 2y + 6\cos 2x + 2\sin x = 3 \end{cases}$$
16.
$$\begin{cases} \cos(2y) \cdot \sqrt{\sin x} = 0 \\ \cos(2y) + 4\sin^2 x - 3 = 0 \end{cases}$$
17.
$$\begin{cases} \sin y \cdot \sqrt{5\sin x - 2} = 0 \\ 6\sin^2 x - 5\sin x + \cos^2 x = 0 \end{cases}$$
18.
$$\begin{cases} \sin y \cdot \sqrt{2\cos x + 1} = 0 \\ 2\cos 2y + 2\cos 2x = 3 \end{cases}$$
19.
$$\begin{cases} \sqrt{x - 2} = 2\cos y \\ 2\sin^2 y - \sin y - 1 = 0 \end{cases}$$
20.
$$\begin{cases} \sqrt{y + 5} + \sin x + \sqrt{3}\cos x = 0 \\ 2\sin^2 x + \sin x = 0 \end{cases}$$

21.
$$\begin{cases} 2\sqrt{3}\sin x = y \\ y^2 + 2y + \sqrt{y^2 + 2y - 6} = 18 \end{cases}$$
22.
$$\begin{cases} 2y^2 - 2y + \cos 2x + 2\cos x = 11 \\ \cos x - y = 1 \end{cases}$$
23.
$$\begin{cases} \cos y \cdot \sqrt{2\sin x + 1} = 0 \\ 4\cos^2 y + 2\cos 2x + 1 = 0 \end{cases}$$
24.
$$\begin{cases} 3^y + 2\sin 2x = 0 \\ 2\sin^2 x - 3\sin x - 2 = 0 \end{cases}$$
25.
$$\begin{cases} 8\sin x + 6\cos y = 2 \\ 6\sin x - 5\cos y = -8 \end{cases}$$
26.
$$\begin{cases} 2^{\cos x} + 2^{\frac{1}{\cos y}} = 5 \\ 2^{\cos x + \frac{1}{\cos y}} = 4 \end{cases}$$
27.
$$\begin{cases} \operatorname{tg} y = 4\cos x - 3\sin x \\ \operatorname{ctg} y = \sin x \end{cases}$$
28.
$$\begin{cases} 3x + 5\operatorname{tg} y = -3 \\ 11x + 15\operatorname{tg} y = -21 \end{cases}$$
29.
$$\begin{cases} 3^y + \operatorname{tg} x = 0 \\ 4\sin^2 x + 8\sin x + 3 = 0 \end{cases}$$
30.
$$\begin{cases} \cos 2x + 2\cos y = 1 \\ \sin^2 x + \cos^2 y = \frac{3}{4} \end{cases}$$
31.
$$\begin{cases} 3^{1+2\log_3(y-x)} = 48 \\ 2\log_5(2y-x-12) - \log_5(y-x) = \log_5(x+y) \end{cases}$$
32.
$$\begin{cases} 2^{\sqrt{x^2-6x-23}} = 6 - \sqrt{x^2 - 6x - 23} \\ \log_3 x = y \end{cases}$$
33.
$$\begin{cases} 3^{\sqrt{x^2-7x-7}} = 5 - 2\sqrt{x^2 - 7x - 7} \\ \log_2 x = y \end{cases}$$
34.
$$\begin{cases} x^2 + 3 - \sqrt{2x^2 - 3x + 2} = 1,5(x + 4) \\ 2\sqrt{2}\cos y = x \end{cases}$$
35.
$$\begin{cases} x + 2x^2 - \sqrt{2x^2 + x - 1} = 7 \\ 2\sin y = x \end{cases}$$
36.
$$\begin{cases} 4^{\sin y} - 5 \cdot 2^{\sin y} + 4 = 0 \\ \sqrt{x} + 5\cos y = -1 \end{cases}$$

$$37. \begin{cases} 3^y \cdot 9^x = 81 \\ \lg(x+y)^2 - \lg x = 2 \lg 3 \end{cases}$$

$$38. \begin{cases} \sqrt{y + \cos^2 x - 2} = \cos x \\ y \cdot \sin^2 x - \sin x - 1 = 0 \end{cases}$$

$$39. \begin{cases} \log_{\frac{1}{2}}^2 \cos x + \log_{\frac{1}{2}} \cos x - 2 = 0 \\ \sqrt{y} + \sqrt{3} \sin x = 1 \end{cases}$$

$$40. \begin{cases} \log_x \frac{y}{9} + \frac{3x}{y(x+9)} = 0 \\ (y-2)^{-1} = (y-2)^{-\log_9(x+8)} \end{cases}$$

$$41. \begin{cases} 2 \lg \sqrt{x} + 2^y + 1 = 0 \\ \lg x^3 + 4^y - 1 = 0 \end{cases}$$

$$42. \begin{cases} 9^{\cos y} - 10 \cdot 3^{\cos y} + 9 = 0 \\ \sqrt{x} + 6 \sin y = 1 \end{cases}$$

$$47. \begin{cases} 4^{\sin x} + 2^{\sin x} - 2 = 0 \\ \sqrt{y} + 2 \cos x = 3 \end{cases}$$

$$49. \begin{cases} 4 \sin^2 y - 8 \sin y + 3 = 0 \\ \sqrt{x-2} = \sin y + \sqrt{3} \cos y \end{cases}$$

$$50. \begin{cases} 2 \cos^2 x + \cos x = 0 \\ \sqrt{y+1} = \sin x + \sqrt{3} \cos x \end{cases}$$

$$51. \begin{cases} \sqrt{y + \cos^2 x - 1} = -\cos x \\ y \cdot \sin^2 x - (y - \frac{\sqrt{3}}{2}) \sin x - \frac{\sqrt{3}}{2} = 0 \end{cases}$$

$$43. \begin{cases} 3^x - 2^{y^2} = 77 \\ 3^{\frac{x}{2}} - 2^{\frac{y^2}{2}} = 7 \end{cases}$$

$$44. \begin{cases} \sqrt{x + \sin^2 y - 2} = \sin y \\ x \cdot \cos^2 y - (\sqrt{2} - x) \cos y - \sqrt{2} = 0 \end{cases}$$

$$45. \begin{cases} 2 \log_2^2 \sin x + \log_2 \sin x - 1 = 0 \\ \sqrt{y} + 2\sqrt{3} \cos x = 2 \end{cases}$$

$$46. \begin{cases} \log_3(x-2y) + \log_3(3x+2y) = 3 \\ 8 \cdot (\sqrt{2})^{x-y} = (\frac{1}{2})^{y-3} \end{cases}$$

$$52. \begin{cases} \log_2^2 \cos y + \log_2 \cos y - 2 = 0 \\ \sqrt{x} + \sin y = \frac{\sqrt{3}}{2} \end{cases}$$

$$53. \begin{cases} 16^{\cos y} - 17 \cdot 4^{\cos y} + 16 = 0 \\ \sqrt{x} + 5 \sin y = 4 \end{cases}$$

$$54. \begin{cases} \sqrt{x + \sin^2 y - 1} = -\sin y \\ x \cdot \cos^2 y - (\frac{\sqrt{2}}{2} - x) \cos y - \frac{\sqrt{2}}{2} = 0 \end{cases}$$

$$55. \begin{cases} \log_{\frac{1}{2}}^2 \sin y + 2 \log_{\frac{1}{2}} \sin y - 3 = 0 \\ \sqrt{x} - \cos y = \frac{\sqrt{3}}{2} \end{cases}$$

$$56. \begin{cases} 9^{\cos x} + 8 \cdot 3^{\cos x} - 9 = 0 \\ \sqrt{y} + 3 \sin x = 5 \end{cases}$$

$$57. \begin{cases} \sqrt{y + \cos^2 x + 1} = \cos x \\ y \cdot \sin^2 x - (y - \frac{\sqrt{2}}{2}) \sin x - \frac{\sqrt{2}}{2} = 0 \end{cases}$$

$$58. \begin{cases} \log_2^2 \cos x - 3 \log_2 \cos x - 4 = 0 \\ \sqrt{y} + 4 \sin x + \sqrt{3} = 0 \end{cases}$$

$$59. \begin{cases} \cos 2x - 2y^2 + 2y = 1 \\ \cos x - 2y = -3 \end{cases}$$

$$60. \begin{cases} \sqrt[3]{x+2y} + \sqrt[3]{x-y+2} = 3 \\ 2x + y = 7 \end{cases}$$

$$61. \begin{cases} \sqrt{x} + 3y = 9 \\ x - 1 = (\sqrt{x} + 1)y \end{cases}$$

$$62. \begin{cases} 16^{\cos x} - 10 \cdot 4^{\cos x} + 16 = 0 \\ \sqrt{y} + 2 \sin x = 0 \end{cases}$$

$$63. \begin{cases} x^2 + 3x - \sqrt{x^2 + 3x - 1} = 7 \\ 2\sqrt{2} \sin y = x \end{cases}$$

$$64. \begin{cases} \sin x - \sin y = 1 \\ \cos^2 x - \cos^2 y = 0 \end{cases}$$

$$65. \begin{cases} (2x^2 - 5x - 3)\sqrt{\cos y} = 0 \\ \sin y = x \end{cases}$$

$$66. \begin{cases} \cos x = y - 2 \\ \sin x = y - 3 \end{cases}$$

$$67. \begin{cases} 2^x = \sin x \\ 2^{-x} = 2 \sin y + 1 \end{cases}$$

$$68. \begin{cases} 2 \sin^2 y + 3 \sin y - 2 = 0 \\ \sqrt{x^2 - x} + 4 \cos y = 0 \end{cases}$$

$$69. \begin{cases} 3^y + 2 \cos x = 0 \\ 2 \sin^2 x - 3 \sin x - 2 = 0 \end{cases}$$

$$70. \begin{cases} x^2 = 8 \sin y + 1 \\ x + 1 = 2 \sin y \end{cases}$$

$$71. \begin{cases} 2 \sin^2 x - 2 \cos^2 x - 1 = 0 \\ \cos y \sqrt{\sin x} = 0 \end{cases}$$

$$72. \begin{cases} 4 \cos^2 x - 4 \cos^2 y - 3 = 0 \\ \sqrt{y^2 - y - 3} + 2 \sin x = 0 \end{cases}$$

$$73. \begin{cases} \cos 2y = \cos y \\ \sqrt{x^2 - 2x} = 2 \sin y \end{cases}$$

$$74. \begin{cases} x \operatorname{tg} x = 9 = 0 \\ x \operatorname{ctg} y = 3 \end{cases}$$

Задачи типа С3 по модели ЕГЭ 2010

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1. $\log_x (\log_{\frac{x}{4}} \sqrt{4-x}) < 0$.
2. $\log_x (\log_{\frac{x}{2}} \sqrt{2-x}) < 0$
3. $\frac{1}{2} \log_{4+x} (x^2 + 2x + 1) + \log_{-x-1} (-x^2 - 5x - 4) \leq 3$.
4. $\log_{x-1} (-x^2 + 8x - 7) - \frac{1}{16} \log_{x-1}^2 (x-7)^2 \geq 2$.
5. $\frac{1}{4} \log_{1+2x} (x^2 - 2x + 1)^2 + \log_{1-x} (-2x^2 + x + 1) \geq -1$.
6. $3 \log_{x-2} (8-x) + 1 \geq \frac{1}{4} \log_{x-2}^2 (x^2 - 10x + 16)^2$.
7. $\log_x (x^3 - 8x^2 + 19x - 10) > \log_x (5-x) + \log_x (x-2)$.
8. $\log_{\sqrt[3]{x-3}} \left(\frac{x-10}{x^2 - 6x + 5} \right) + 3 \leq 0$.
9. $\log_{\sqrt[3]{x-2}} \left(\frac{x-8}{x^2 - 4x + 3} \right) + 3 \leq 0$.
10. $\log_3 (x^2 - 9) - 3 \log_3 \frac{x+3}{x-3} > 2$.
11. $\log_{3x+2} (6x^2 + 19x + 10) = 3 + \frac{1}{\log_3 (3x+2)}$.
12. $\log_{|x-2|} (2 - |x-1|) < 1$.
13. $\log_{|x-2|} (3 - |x|) < 1$.
14. $\log_{|3x+5|} (3x^2 + 8x + 9) > 2$.

$$15. \log_{|x+4|}(x^2 - x - 4) \geq 1.$$

$$16. \lg^2 \frac{(x-3)^2 \cdot (x-2)}{18} > \lg^2 \frac{(x-2)}{2}.$$

$$17. \log_{\frac{x}{3}}(\log_3 \frac{x-12}{x-10}) \geq 0.$$

$$18. \sqrt{33 + \frac{8}{\log_x 4}} = 3 \log_4(4\sqrt[3]{x^2}).$$

$$19. \log_x(x^3 - 8x^2 + 17x - 6) > \log_x(6-x) + \log_x(x-1).$$

$$20. \log_3(x^2 - 16) - 3 \log_3 \frac{x+4}{x-4} \geq 4.$$

$$21. \log_{2x-3}(2x^2 - x - 3) = 3 + \frac{1}{\log_2(2x-3)}.$$

$$22. \sqrt{17 - \frac{4}{\log_x 2}} = 3 \log_2(0,5\sqrt[3]{x}).$$

$$23. \log_x(x^3 - 10x^2 + 28x - 16) > \log_x(8-x) + \log_x(x-2).$$

$$24. \log_5(x^2 - 25) - 3 \log_3 \frac{x+5}{x-5} > 2.$$

$$25. \log_{2x+5}(4x^2 + 23x + 32,5) = 3 + \frac{1}{\log_{0,5}(2x+5)}.$$

$$26. \sqrt{13 + \frac{4}{\log_x 3}} = 2 \log_3(3\sqrt{x}).$$

$$27. \log_x(x^3 - 12x^2 + 39x - 24) > \log_x(8-x) + \log_x(x-3).$$

$$28. \log_6(x^2 - 36) \geq 2 + 3 \log_6 \frac{x+6}{x-6}$$

$$29. \log_{2-3x^2}(4-9x^4) = 2 + \frac{1}{\log_2(2-3x^2)}.$$

$$30. \log_x(5x^2) \cdot \log_5^2 x > 1.$$

$$31. \log_{|x|}(5-4x) < 2.$$

$$32. \log_{|x-1|}(\frac{7}{4} - x) > 2.$$

$$33. \log_{|x+6|}(x^2 - x - 2) \geq 1.$$

$$34. \log_{\sqrt{2x^2-7x+6}} \frac{x}{3} > 0.$$

$$35. \frac{\log_2(3 \cdot 2^{x-1} - 1)}{x} \geq 1.$$

$$37. \log_2(x^2 - 4) - 3 \log_2 \frac{x+2}{x-2} > 2.$$

$$38. \log_{x+3}(9 - x^2) - \frac{1}{16} \log_{x+3}^2(x-3)^2 \geq 2.$$

$$39. \log_{2x+3} x^2 < 1.$$

$$40. \log_{\frac{1}{x}}(\frac{5}{2}x - 1) \geq -2.$$

$$41. \log_x(\log_9(3^x - 9)) < 1.$$

$$42. \log_{0,1}(x^2 + x - 2) > \log_{0,1}(x + 3).$$

$$43. \frac{\log_2(3 \cdot 2^{x-1} - 1)}{x} \geq 1.$$

$$44. \frac{(x^2 - 4)}{\log_{\frac{1}{2}}(x^2 - 1)} < 0.$$

$$45. \log_{\frac{1}{2}} x + \log_3 x > 1.$$

$$46. \left(\frac{1}{2}\right)^{\log_2(x^2-1)} > 1.$$

$$47. \log_{x+4}(5x+20) \leq \log_{x+4}(x+4)^2.$$

$$48. \log_{x+3}(9 - x^2) - \frac{1}{16} \log_{x+3}^2(x-3)^2 \geq 2$$

$$36. \frac{\log_2 x - 5}{1 - \log_2 x^2} \geq 2 \log_2 x.$$