

**Домашнее задание по курсу «Математика для групп А»
на тему «Алгебраические, логарифмические, показательные и тригонометрические
уравнения и неравенства» (в переложении для групп С)**

Вариант	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	36	25	26	49	27	37	36	25	26	49	27	37	36	25	26	49	27	37
	114	115	116	113	107	108	115	116	113	107	108	114	108	114	115	116	113	107
	134	165	130	144	102	62	130	144	102	62	134	165	102	62	134	165	130	144
	78	66	79	63	45	46	63	45	46	78	66	79	63	45	46	78	66	79
	72	59	52	44	51	22	51	22	72	59	52	44	52	44	51	22	72	59
	71	47	3	40	4	55	55	71	47	3	40	4	47	3	40	4	55	71
	18	20	21	1	13	14	15	16	17	5	6	7	8	9	10	11	12	19
	29	23	24	30	34	35	31	28	32	48	39	33	57	41	42	50	43	56
	180	176	177	169	168	167	162	159	161	164	166	156	163	157	153	152	155	145
	82	38	54	53	58	75	76	88	73	100	83	103	81	110	98	106	121	118
	287	277	282	286	285	283	283	287	277	287	277	282	286	285	283	282	286	285
	250	255	275	242	251	246	251	246	250	255	275	242	251	246	250	255	275	242
	212	213	231	232	233	234	231	232	233	233	234	212	213	231	232	234	212	213
	185	186	191	187	188	189	186	191	187	189	185	186	191	187	188	188	189	185
	196	184	192	244	248	214	196	184	192	248	214	196	184	192	244	244	248	214
	197	202	249	240	223	221	202	249	240	240	223	221	197	202	249	223	221	197
	181	195	193	194	182	183	193	194	182	193	194	182	183	181	195	183	181	195
	275	282	286	283	262	267	214	240	234	282	286	283	262	267	275	268	231	192
	204	205	220	216	217	218	219	227	228	235	236	237	238	211	230	228	241	245
	279	278	274	266	265	273	259	261	256	243	247	272	271	258	270	269	239	220
	284	280	281	288	290	289	292	292	291	291	292	292	289	290	288	281	280	284
	253	254	252	222	229	210	203	209	201	208	200	207	199	206	198	263	190	215
	264	260	257	276	276	257	260	264	253	254	252	222	229	210	203	209	201	208
	320	321	325	370	371	326	327	328	329	330	331	332	333	334	335	336	337	324
	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355
	356	357	360	358	362	359	364	363	365	360	366	367	368	367	369	322	372	361
	373	374	375	388	377	378	379	380	323	389	382	383	384	385	386	387	388	389
	390	391	392	393	394	395	396	397	398	390	391	392	397	398	396	395	394	393
	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	404	414	415
	416	423	419	427	425	430	429	422	421	418	420	424	431	432	428	426	416	417
	433	434	435	438	436	437	439	440	435	436	434	438	439	440	433	437	433	434

Задание: решить тридцать одну задачу (номера задач указаны в столбце с номером Вашего варианта).

Задание А. Решить уравнение

- | | | | |
|---|---|---|---|
| 1. $ x + x + 3 = 9$ | 22. $4\sqrt{x} - 2\sqrt{x-1} - 3 = 0$ | 38. $\frac{x^2 + x + 1}{x^2 - x + 1} = \frac{7}{9} \cdot \frac{x + 1}{x - 1}$ | 54. $\frac{x^2 + 1}{n^2x - 2n} - \frac{1}{2 - nx} = \frac{x}{n}$ |
| 2. $ 2 - 1 - x = 1$ | 23. $\sqrt{x-2} + \sqrt{1-x} = 2$ | 39. $\sqrt[7]{\frac{5-x}{x+3}} + \sqrt[7]{\frac{x+3}{5-x}} = 2$ | 55. $\left(\frac{5}{3}\right)^{x-2} - \frac{25^{x-1}}{3^{2x}} = 0,32$ |
| 3. $2^{x^2+2} + 2^{3-x^2} = 33$ | 24. $\sqrt{4-x} + \sqrt{5+x} = 3$ | 40. $\frac{4^{x+1}}{3^{2x}} - 4 = 5 \cdot \left(\frac{2}{3}\right)^{x+1}$ | 56. $\sqrt[3]{5x+7} - \sqrt[3]{5x-12} = 1$ |
| 4. $\frac{4^x}{9^{x-1}} + 5 \left(\frac{2}{3}\right)^x = 4$ | 25. $\frac{\lg(3x^2 - 3x + 1)}{\lg x} = 2$ | 41. $\sqrt{4x+2} + \sqrt{4x-2} = 4$ | 57. $\sqrt[5]{\frac{16x}{x-1}} + \sqrt[5]{\frac{x-1}{16x}} = 2,5$ |
| 5. $ x+2 + 8 = 6-x $ | 26. $\frac{\lg(5x^2 - 6x + 2)}{\lg x} = 2$ | 42. $\sqrt{2x+5} - \sqrt{3x-5} = 2$ | 58. $\frac{a+x-2n}{2a-n} - \frac{x}{a-2n} = 1$ |
| 6. $ x-3 - 8-x = 5$ | 27. $\frac{\lg(11-x-2x^2)}{\lg(3-x)} = 2$ | 43. $\sqrt{17+x} - \sqrt{17-x} = 2$ | 59. $3 \cdot 9\sqrt{x} - 28 \cdot 3\sqrt{x} + 9 = 0$ |
| 7. $ 3-x + 1-x = 2$ | 28. $\sqrt{x^5\sqrt{x}} - 5\sqrt{x\sqrt{x}} = 56$ | 44. $4\sqrt{x} - 9 \cdot 2\sqrt{x-1} + 2 = 0$ | 60. $ 2-x + x-3 - x = 3$ |
| 8. $ 2-x - 9-x = 7$ | 29. $\sqrt{3x+7} - \sqrt{x+1} = 2$ | 45. $\log_x(3x^2 - 3x + 1) = 2$ | 61. $\sqrt{3x+4} + \sqrt{x-4} = 2\sqrt{x}$ |
| 9. $ 2-x + 5-x = 3$ | 30. $\sqrt{x+1} = 8 - \sqrt{3x+1}$ | 46. $\log_x(3x^2 - 5x + 3) = 2$ | 62. $\log_3(3x+8) = 1 - \log_3 x$ |
| 10. $ 3-x + 7-x = 4$ | 31. $\sqrt{15-x} + \sqrt{3-x} = 6$ | 47. $3 \cdot (3^{-x^2} + 3^{x^2+1}) = 28$ | 63. $\log_x(3x^2 - 15x + 13) = 2$ |
| 11. $ 9-x - 5-x = 4$ | 32. $\sqrt{25-x} = 2 - \sqrt{9+x}$ | 48. $\sqrt[3]{x} + \sqrt[3]{x-16} = \sqrt[3]{x-8}$ | 64. $\sqrt[3]{1+\sqrt{x}} + \sqrt[3]{1-\sqrt{x}} = 2$ |
| 12. $ 8-x + 6-x = 2$ | 33. $\sqrt{3x+7} - \sqrt{x+1} = 2$ | 49. $\frac{\lg(3x^2 - 16x + 13)}{\lg(x-1)} = 2$ | 65. $\sqrt[4]{47-2x} + \sqrt[4]{35+2x} = 4$ |
| 13. $ 6-x = 1 - 5-x $ | 34. $\sqrt[3]{x+34} - \sqrt[3]{x-3} = 1$ | 50. $\sqrt{x^2+9} - \sqrt{x^2-7} = 2$ | 66. $1 + \log_{\sqrt{2}} x = \log_2(3-x)$ |
| 14. $ 7-x = 2-x + 5$ | 35. $x^3\sqrt{x} - 4 \cdot \sqrt[3]{x^2+4} = 0$ | 51. $2 \cdot 4\sqrt{x} - 9 \cdot 2\sqrt{x} + 4 = 0$ | 67. $ x + x-1 + x-2 = 14$ |
| 15. $ 7-x = 9 - 2-x $ | 36. $\frac{\lg(4x^2 + 11x + 7)}{\lg(x+3)} = 2$ | 52. $3 \cdot 4^{x^2} - 13 \cdot 2^{x^2} + 4 = 0$ | 68. $ 2x-1 - 5 + x = 6-x $ |
| 16. $9 - 1-x = 8-x $ | 37. $\frac{\lg(6x^2 - 20x + 7)}{\lg(2-3x)} = 2$ | 53. $\frac{1}{a} + \frac{1}{a+x} + \frac{1}{a+2x} = 0$ | 69. $ 3x-1 - 2-x + x = 4$ |
| 17. $ x-8 = 6 + 2-x $ | | | 70. $ x+2 + 2-x - x = 10$ |
| 18. $ 8-x + 14-x = 6$ | | | |
| 19. $ 11-x - x-4 = 7$ | | | |
| 20. $ 3-x = 11 - 6-x $ | | | |
| 21. $ 12-x - 9 = x-3 $ | | | |

$$71. 25x^{2+\frac{1}{2}} - 5x^2 = 5x^{2+3} - 25$$

$$72. 9^{1-x^2} - 28 \cdot 3^{1-x^2} + 27 = 0$$

$$73. \frac{ax-b}{a+b} + \frac{bx+a}{a-b} = \frac{a^2+b^2}{a^2-b^2}$$

$$74. \frac{3+x}{3x} = \sqrt{\frac{1}{9} + \frac{1}{x}\sqrt{\frac{4}{9} + \frac{2}{x^2}}}$$

$$75. 1 - \frac{2a}{x-a} = \frac{b^2-a^2}{a^2+x^2-2ax}$$

$$76. 1 - \frac{2b}{x-a} = \frac{a^2-b^2}{a^2+x^2-2ax}$$

$$77. \sqrt[3]{24+\sqrt{x}} - \sqrt[3]{5+\sqrt{x}} = 1$$

$$78. 1 + \log_{\sqrt{2}} x = \log_2(5x+3)$$

$$79. 1 + \log_{\sqrt{3}} x = \log_3(5x+2)$$

$$80. |5x-x^2-6| = x^2-5x+6$$

$$81. \frac{x^2}{ab-2b^2} = \frac{a-b}{ac^2-2bc^2} + \frac{x}{bc}$$

$$82. \frac{x}{a+b} + \frac{2a-x}{a-b} - \frac{a+b}{x} = 1$$

$$83. \frac{\frac{x}{2x} - \frac{b-x}{x}}{b^2} = \frac{1}{4(x^2-b^2)}$$

$$84. |4x-0.5| + |x| = 4 - |1-x|$$

$$85. \sqrt{x+5} + \sqrt{x+3} = \sqrt{2x+7}$$

$$86. \frac{\sqrt{21+x} + \sqrt{21-x}}{\sqrt{21+x} - \sqrt{21-x}} = \sqrt{21}x$$

$$87. \sqrt{12 - \frac{12}{x^2}} + \sqrt{x^2 - \frac{12}{x^2}} = x^2$$

$$88. \frac{x}{x+a} + \frac{2x}{x-a} = \frac{5a^2}{4(x^2-a^2)}$$

$$89. \sqrt[3]{x+1} + \sqrt[3]{3x+1} = \sqrt[3]{x-1}$$

$$90. \sqrt{x^2+32} - 2 \cdot \sqrt{x^2+32} = 3$$

$$91. |x-2| + |x+3| - |x-4| = 5$$

$$92. |1-x| + |x+2| + |x+3| = 6$$

$$93. |x+2| + |x-1| + |3-x| = 7$$

$$94. |x+1| + |x-2| + |x-3| = 6$$

$$95. |x-1| + |x+2| - |x-3| = 4$$

$$96. |x-1| + |x+1| - |1-x| = 3$$

$$97. \sqrt{x^2+1} + \sqrt{x^2-2x+3} = 3$$

$$98. \frac{6b+7a}{6b} - \frac{3ax}{2b^2} = 1 - \frac{ax}{b^2-ab}$$

$$99. |-x^2+9x-8| = x^2-9x+8$$

$$100. \frac{x+1}{2(x-1)} = \frac{9}{2(x+4)} + \frac{1}{x-1}$$

$$101. \sqrt[3]{x+5} + \sqrt[3]{x+6} = \sqrt[3]{2x+11}$$

$$102. \log_6(x+1) = 1 - \log_6(x+2)$$

$$103. \frac{\left(\frac{a-x}{x}\right)^2 - \left(\frac{a}{a+b}\right)^2}{x^2+a^2-2ax} = \frac{5}{9x^2}$$

$$104. x^2-4x-6 = \sqrt{2x^2-8x+12}$$

$$105. \frac{\sqrt{x^2+8x} + \sqrt{x+7}}{\sqrt{x+1}} = \frac{7}{\sqrt{x+1}}$$

$$106. \frac{(a-x)^4 + (x-b)^4}{(a+b-2x)^2} = \frac{a^4+b^4}{(a+b)^2}$$

$$107. \left[\log_2\left(5 - \frac{3}{x}\right) - 1 \right] \cdot \log_x 2 = 1$$

$$108. \left[\log_3\left(5 - \frac{2}{x}\right) - 1 \right] \cdot \log_x 3 = 1$$

$$109. \frac{\sqrt[3]{x+1} + \sqrt[3]{x+2} + \sqrt[3]{x+3}}{1} = \frac{2(n+3)}{2(n+3)}$$

$$110. \frac{2n+nx}{3(n-2)} - \frac{2x-x^2}{4\sqrt{2x^2-3x+1}} = \frac{x^3-4x}{3(n-2)}$$

$$111. \frac{3(x-2) + 4\sqrt{2x^2-3x+1}}{2(x^2-1)} = 1$$

$$112. \sqrt{4x-3} + \sqrt{5x+1} = \sqrt{15x+4}$$

$$113. \left[1 - \log_3\left(\frac{4}{5} - \frac{5}{x}\right) \right] \cdot \log_x 3 = 1$$

$$114. \left[1 + \log_2\left(\frac{3}{2} - \frac{1}{x}\right) \right] \cdot \log_x 2 = 1$$

$$115. \left[2 + \log_2\left(\frac{5}{4} - \frac{1}{x}\right) \right] \cdot \log_x 2 = 1$$

$$116. \left[1 + \log_3\left(\frac{4}{3} - \frac{1}{x}\right) \right] \cdot \log_x 3 = 1$$

$$117. \frac{\sqrt{x^2+x+1}}{a} = \frac{\sqrt{x^2-x+1}}{a-1} + 1$$

$$118. \frac{nx-x}{nx-x} - \frac{x^2-2nx^2+n^2x^2}{x^2-2nx^2+n^2x^2} = 1$$

$$119. 0.25x = (\sqrt{1+x}-1)(\sqrt{1-x}+1)$$

$$120. \sqrt{x-2} + \sqrt{4-x} = x^2-6x+11$$

$$121. \frac{a-x^2}{(a-x)^2} - \frac{1}{a} = \frac{a-1}{a^3-ax(2a-x)}$$

$$122. \sqrt{x^2+x-5} + \sqrt{x^2+8x-4} = 5$$

$$123. \sqrt[3]{9-\sqrt{x+1}} + \sqrt[3]{7+\sqrt{x+1}} = 4$$

$$124. \sqrt{x-\sqrt{x-2}} + \sqrt{x+\sqrt{x-2}} = 2$$

$$125. \sqrt[5]{(7x-3)^3} + 8 \cdot \sqrt[5]{(3-7x)^{-3}} = 7$$

$$126. x^2+3x-18+4\sqrt{x^2+3x-6} = 0$$

$$127. \frac{1}{x-\sqrt{x^2-x}} - \frac{1}{x+\sqrt{x^2-x}} = \sqrt{3}$$

$$128. |x-1| - 2 \cdot |x-2| + 3 \cdot |x-3| = 4$$

$$129. (x-3)^2 + 3x - 22 = \sqrt{x^2-3x+7}$$

$$130. \log_2(4^x+1) = x + \log_2(2^{x+3}-6)$$

$$131. \frac{c+3x}{4c^2+6cd} - \frac{c-2x}{9d^2-6cd} = \frac{2c+x}{4c^2-9d^2}$$

$$132. |3-x| + |2x+4| - |x+1| = 2x+4$$

$$133. \sqrt{2x^2+8x+6} + \sqrt{x^2-1} = 2x+2$$

$$134. \lg(4^{-x^2}+9) = \lg 5 + \lg(2^{-x^2}+1)$$

$$135. \frac{x^2}{x^2-4} + \frac{x+1}{2(x-2)} = \frac{1}{2-x} - \frac{1}{x+2}$$

$$136. \sqrt{x+2\sqrt{x-1}} - \sqrt{x-2} = 3$$

$$137. \sqrt{x+\sqrt{x+11}} + \sqrt{x-\sqrt{x+11}} = 4$$

$$138. (x+4)(x+1) - 3\sqrt{x^2+5x+2} = 6$$

$$139. \frac{(5-x)\sqrt{5-x} + (x-3)\sqrt{x-3}}{\sqrt{5-x} + \sqrt{x-3}} = 2$$

$$140. \sqrt{3x^2+5x+8} - \sqrt{3x^2+5x+1} = 1$$

$$141. \frac{a^2+x}{b^2-x} - \frac{a^2-x}{b^2+x} = \frac{4abx+2a^2-2b^2}{b^4-x^2}$$

$$142. \frac{12x+1}{6x-2} - \frac{9x-5}{3x+1} = \frac{108x-36x^2-9}{4(9x^2-1)}$$

$$143. \left| \frac{1}{2}x^2 - 2x + \frac{3}{2} \right| + \left| \frac{1}{2}x^2 - 3x + 4 \right| = \frac{3}{4}$$

$$144. \log_{\sqrt{2}} x = 2 \cdot \log_2 3 - 1 + \log_2(x-1)$$

$$145. \sqrt{3x^2-2x+15} + \sqrt{3x^2-2x+8} = 7$$

$$146. \frac{\sqrt{x+4} + \sqrt{x-4}}{2} = x-6 + \sqrt{x^2-16}$$

$$147. \frac{x-a-b}{c} + \frac{x-b-c}{a} + \frac{x-c-a}{b} = 3$$

$$148. \frac{x-1}{n-1} + \frac{2n^2(1-x)}{n^4-1} = \frac{2x-1}{1-n^4} - \frac{x-1}{1+n}$$

$$149. \sqrt[n]{(x+1)^2} + \sqrt[n]{(x-1)^2} = 4 \cdot \sqrt[n]{x^2-1}$$

$$150. \sqrt{x+2\sqrt{x-1}} + \sqrt{x-2\sqrt{x-1}} = x-1$$

$$151. \frac{x+x^2}{1-x^2} : \frac{1-a^2}{(1+ax)^2 - (a+x)^2} = \frac{ab}{(b-a)^2}$$

$$152. \sqrt{x^2+2\sqrt{x^2-1}} - \sqrt{x^2-2\sqrt{x^2-1}} = 1$$

$$153. \frac{1}{\sqrt{x+2\sqrt{x-1}}} + \frac{1}{\sqrt{x-2\sqrt{x-1}}} = \frac{2}{2-x}$$

$$154. \frac{3ab+1}{a} \cdot x = \frac{3ab}{a+1} + \frac{(2a+1) \cdot x}{a \cdot (a+1)^2} + \frac{a^2}{(a+1)^3}$$

$$155. \sqrt[3]{(a+x)^2+4} \cdot \sqrt[3]{(a-x)^2} = 5 \cdot \sqrt[3]{a^2-x^2}$$

$$156. \sqrt{x+8+2\sqrt{x+7}} + \sqrt{x+1-\sqrt{x+7}} = 4$$

$$157. \sqrt{4x^2+9x+5} - \sqrt{2x^2+x-1} = \sqrt{x^2-1}$$

$$158. \frac{1}{x^2-2x+2} + \frac{1}{x^2-2x+3} = \frac{1}{x^2-2x+4}$$

$$159. \sqrt{\frac{\sqrt{x^2+66^2}+x}{x}} - \sqrt{x\sqrt{x^2+66^2}-x^2} = 5$$

$$160. \frac{3abc}{a+b} + \frac{a^2b^2}{(a+b)^2} + \frac{(2a+b)b^2x}{a(a+b)^2} = 3cx + \frac{bx}{a}$$

$$161. \sqrt{x+2+2\sqrt{x+1}} + \sqrt{x+2-2\sqrt{x+7}} = 2$$

$$162. \sqrt{x+5-4\sqrt{x+1}} + \sqrt{x+2-2\sqrt{x+1}} = 1$$

$$163. \sqrt{x+3-4\sqrt{x-1}} + \sqrt{x+8-6\sqrt{x-1}} = 1$$

$$164. \sqrt{x-1+2\sqrt{x-2}} - \sqrt{x-1-2\sqrt{x-2}} = 1$$

$$165. \log_3(2^x+3) + 1 = \log_9 63 + \log_9(2^{x+1}-1)$$

$$166. \sqrt{x^2+x+4} + \sqrt{x^2+x+1} = \sqrt{2x^2+2x+9}$$

$$167. \sqrt{3x^2+6x+16} + \sqrt{x^2+2x} = 2\sqrt{x^2+2x+4}$$

$$168. \sqrt{2x^2-9x+4} + 3\sqrt{2x-1} = \sqrt{2x^2+21x-11}$$

$$169. \sqrt{x-2} + \sqrt{2x-5} + \sqrt{x+2+3\sqrt{2x-5}} = 7\sqrt{2}$$

$$170. \frac{x-m}{x-1} + \frac{x+m}{x+1} = \frac{x-2m}{x-2} + \frac{x+2m}{x+2} - \frac{6(m-1)}{5}$$

$$171. \frac{x+m}{a+b} - \frac{ax}{(a+b)^2} = \frac{am}{a^2-b^2} - \frac{b^2x}{a^3-ab^2+a^2b-b^3}$$

$$172. \frac{m}{x} + \frac{x}{m} + \frac{m(x-m)}{x(x+m)} - \frac{x(x+m)}{m(x-m)} = \frac{mx}{m^2-x^2} - 2$$

$$173. \frac{a+x}{a^2+ax+x^2} - \frac{a-x}{ax-a^2-x^2} = \frac{3a}{x(a^4+a^2x^2+x^4)}$$

$$174. \frac{4x^2+29+45-(x+1)(2x+15)}{4(x-1)^2-2(x+1)(x-2)} = \frac{(x+1)(x+5)}{(x-1)(x-2)}$$

$$175. \frac{an}{a-x} + \frac{(a+n)(anx+nx^2+x^3)}{x^3+nx^2-a^2x-a^2n} = \frac{ax}{n+x} + \frac{nx^2}{x^2-a^2}$$

$$176. \sqrt[3]{4-4x+x^2} + \sqrt[3]{49+14x+x^2} = 3 + \sqrt[3]{14-5x-x^2}$$

$$177. 2\sqrt{5} \cdot \sqrt[4]{x+1+4} - \sqrt{2} \cdot \sqrt[4]{x+1-1} = \sqrt{20} \cdot \sqrt[4]{x+1+5}$$

$$178. \left(\frac{a+1}{ax+1} + \frac{x+1}{x+a^{-1}} - 1 \right) : \left(\frac{a+1}{a(x+a^{-1})} - \frac{a(x+1)}{ax+1} + 1 \right) = \frac{x}{x-8}$$

$$179. \frac{1}{2x+3} - \frac{1}{x^2-16} + \frac{1}{x^2+11x+12} - \frac{1}{2x^3+3x^2-32x-48} = 0$$

$$180. \sqrt{2x-2\sqrt{2x-1}} - 2\sqrt{2x+3-4\sqrt{2x-1}} + 3\sqrt{2x+8-6\sqrt{2x-1}} = 4$$

Задание Б. Решить неравенство

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|--|---|---|---|--|
| 181. $\frac{2^{\frac{x}{2}} - 2}{x - 2} > 0$ | 191. $\frac{1}{\lg x - 1} < \frac{1}{2}$ | 203. $\frac{x + 5}{ x + 3 - 6} \geq 5$ | 215. $ x - 1 > \frac{3}{2} - 2x$ | 230. $2\sqrt{2x + 5} + 8 \geq x$ |
| 182. $\frac{2^{\frac{x}{2}} - 4}{x - 2} > 0$ | 192. $\frac{2^{2x} + 8}{2^{2x} + 1} > 2^x$ | 204. $\sqrt{x - 1} + x \leq 3$ | 216. $5\sqrt{x - 2} - 4 \geq x$ | 231. $\log_x \frac{2x + \frac{2}{5}}{5(1 - x)} > 0$ |
| 183. $\frac{2^{\frac{x}{2}} - 2}{x - 4} > 0$ | 193. $\frac{4^{-\frac{1}{x}} - 4}{x + 2} < 0$ | 205. $\sqrt{x + 1} + x \leq 5$ | 217. $3\sqrt{x + 4} + x \leq 0$ | 232. $\log_x \frac{4x + 11}{6(x + 1)} < 0$ |
| 184. $\frac{2^{\frac{x}{2}} - 2}{x - 4} > 0$ | 194. $\frac{4^{-\frac{1}{x}} - 2}{x + 2} < 0$ | 206. $\frac{ x - 1 - 6}{x + 1} \leq \frac{1}{5}$ | 218. $5\sqrt{x + 3} + x \leq 3$ | 233. $\log_x \frac{4x + 1}{6(x - 1)} < 0$ |
| 185. $\frac{3^x - 1}{3} > 3^x$ | 195. $\frac{x + 4}{2^{-\frac{1}{x}} - 2} < 0$ | 207. $\frac{ x + 1 - 6}{x + 4} \leq \frac{1}{4}$ | 219. $3\sqrt{x + 2} + x \leq 2$ | 234. $\log_x \frac{3x + 2}{4(1 - x)} > 0$ |
| 186. $\frac{2}{2 - \lg x} < 1$ | 196. $\frac{x + 2}{8} < 0$ | 208. $\frac{ x + 2 - 4}{x} \leq \frac{1}{3}$ | 220. $x + 4 < \sqrt{x + 49}$ | 235. $\sqrt{x^2 - 2x} > 5 - x$ |
| 187. $\frac{1}{1 - \lg x} < 1$ | 197. $\frac{4^{x-1} - 1}{5^{2x+1}} > 4^x$ | 209. $\frac{ x - 2 - 6}{x} \leq \frac{1}{5}$ | 221. $2^{x+2} < 7 + 2^{1-x}$ | 236. $\sqrt{5x - x^2} > 3 - x$ |
| 188. $\frac{1}{\lg x - 1} < 1$ | 198. $\frac{5^{2x+1}}{x - 3} > 5^x + 4$ | 210. $\frac{ x + 3 - 6}{x + 6} \leq \frac{1}{4}$ | 222. $ x^2 - 1 - 2x < 0$ | 237. $\sqrt{5x - x^2} > x - 2$ |
| 189. $\frac{1}{1 + \lg x} < 1$ | 199. $\frac{ x - 1 - 4}{x + 3} \geq 3$ | 211. $\frac{4 - \sqrt{x + 1}}{1 - \sqrt{x + 3}} \leq 3$ | 223. $2^x < 1 + 3 \cdot 2^{2-x}$ | 238. $\sqrt{x^2 - 3x} > 4 - x$ |
| 190. $\left \frac{3x + 1}{x - 3} \right < 3$ | 200. $\frac{ x + 1 - 6}{x + 5} \geq 5$ | 212. $\log_x \frac{3x - 1}{x^2 + 1} > 0$ | 224. $\log_{x^2} \frac{2x}{ x - 3 } \leq \frac{1}{2}$ | 239. $\sqrt{x^2 - 4x} > x - 3$ |
| 245. $\sqrt{15x - x^2} > x - 6$ | 201. $\frac{ x - 2 - 4}{x - 4} \geq 3$ | 213. $\log_x \frac{3x^2}{8 - 2x} > 0$ | 225. $\log_{x^2} \frac{4x - 5}{ x - 2 } \geq \frac{1}{2}$ | 240. $3 \cdot 2^x < 11 + 2^{2-x}$ |
| 246. $4 + \log_{\frac{1}{2}} x \geq \log_x 8$ | 202. $6 \cdot 5^x - 5 > 5^{2x}$ | 214. $\frac{15}{2 - 5^x} + 5^x < 0$ | 226. $\log_{x^2} \frac{3x}{ x - 2 } \leq \frac{1}{2}$ | 241. $3\sqrt{2x + 5} + 5 \geq 2x$ |
| 247. $\sqrt{2x + 3} \leq -2 - 3x$ | 255. $\log_2 4x - \log_x 16 \leq 2$ | 266. $\sqrt{2 - \sqrt{3 + 4}} < \sqrt{x + 4}$ | 227. $\sqrt{2x - 3} + 5 \geq 2x$ | 242. $\log_2 x + \log_x 4 \leq 3$ |
| 248. $\frac{1}{2^x + 5} < \frac{1}{2^{x+2} - 1}$ | 256. $\sqrt{x - 5} - \sqrt{9 - x} > 1$ | 267. $\log_{\frac{1}{4}} \left \frac{2x + 1}{x + 3} + \frac{1}{2} \right > \frac{1}{2}$ | 228. $\sqrt{2x + 3} + 3 \geq 2x$ | 243. $\frac{\sqrt{24 - 2x - x^2}}{3x + 5} < \frac{1}{3^{x+1} - 1}$ |
| 249. $2^{2 - \sqrt{x}} + 2^{\sqrt{x+1}} < 9$ | 257. $x^2 + 2 x + 3 - 10 \leq 0$ | 268. $\log_{\frac{1}{2}} \frac{ x^2 - 2x + 4}{x^2 + x + 2 } \leq 0$ | 229. $\left \frac{x^2 - 5x + 4}{x^2 - 4} \right \leq 1$ | 244. $\frac{1}{3x + 5} < \frac{1}{3^{x+1} - 1}$ |
| 250. $\log_5 x + \log_x 25 \leq 3$ | 258. $\sqrt{x^2 + 7x + 6} < 6 - x$ | 269. $\sqrt{x^2 + 3x - 10} < 7 - x$ | 275. $\log_3 x + \log_x \frac{1}{9} \leq (-1)$ | 276. $ x - 1 + 2 - x > 3 + x$ |
| 251. $\log_3 9x - \log_x 3 \leq 2$ | 259. $\sqrt{x^2 - x - 2} \geq 2x + 3$ | 270. $\sqrt{2x^2 - 3x - 5} < x - 1$ | 277. $\log_4 (x - 2) + \log_4 x < \frac{3}{2}$ | 278. $(x - 3)\sqrt{x^2 + 4} \leq x^2 - 9$ |
| 252. $\frac{ x - 5 - 3}{9} \geq x - 2 $ | 260. $x^2 + x - 10 < 2 x - 2 $ | 271. $\sqrt{2x^2 + 6x + 4} < x + 5$ | 279. $\sqrt{8 - x^2} - \sqrt{25 - x^2} > x$ | 280. $\sqrt{x^2 + 4x - 5} - 2x + 3 > 0$ |
| 253. $x^2 - 3x + 2 + x \geq 0$ | 261. $\sqrt{1 - 3x} - \sqrt{5 + x} > 1$ | 272. $\sqrt{x^2 - 5x - 24} < x + 7$ | 281. $\sqrt{x + 3} < \sqrt{x - 1} + \sqrt{x - 2}$ | 282. $\log_3 (2 - x) < 1 + 2 \cdot \log_3 x$ |
| 254. $ x^2 - 3 + 2x + 1 \geq 0$ | 262. $\log_3 \frac{ x^2 - 4x + 3}{x^2 + x - 5 } \geq 0$ | 273. $\sqrt{x^2 - 3x - 10} < 8 - x$ | 283. $\log_5 (x + 6) - 1 < 2 \cdot \log_5 x$ | 284. $\sqrt{4 - \sqrt{1 - x}} - \sqrt{2 - x} > 0$ |
| 285. $\lg(x - 2) + \lg(x + 1) < \lg 6$ | 263. $ x^2 - 2x - 3 < 3x - 3$ | 274. $\sqrt{x^2 - 3x + 2} > 2x - 5$ | 290. $(x^2 + 2x - 24)\sqrt{x^2 - 3x - 5} \geq 0$ | 291. $\sqrt{x^2 - 9x + 20} \leq \sqrt{x - 1} \leq \sqrt{x^2 - 13}$ |
| 286. $\lg(x + 5) + \lg(x + 1) < \lg 12$ | 264. $ x - 6 > x^2 - 5x + 9 $ | 288. $\frac{\sqrt{x^2 - 16}}{\sqrt{x - 3}} + \sqrt{x - 3} > \frac{5}{\sqrt{x - 3}}$ | 292. $\sqrt{3x^2 + 5x + 7} - \sqrt{3x^2 + 5x + 2} > 1$ | |
| 287. $\log_2 (x - 2) + \log_2 (x - 3) < 1$ | 265. $\sqrt{x^4 - 2x^2 + 1} > 1 - x$ | 289. $\sqrt{x + 3} + \sqrt{x - 2} - \sqrt{2x + 4} > 0$ | | |

Задание В. Решить уравнение или неравенство и систему уравнений. Задачи задания «В», не вошедшие в Ваше домашнее задание, рекомендуется прорешать в рамках самостоятельной подготовки.

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| 293. $\begin{cases} (x + y)\sqrt{x} = 3\sqrt{y}, \\ (x - y)\sqrt{y} = \frac{\sqrt{x}}{2}. \end{cases}$ | 295. $\log_{\prod_n} n x = \frac{1}{\sum_n \frac{1}{\log_n x}}$ | 297. $\begin{cases} \log_c \frac{x}{y} = \frac{\log_c x}{\log_c y}, \\ x^a = y^b, a \neq b, ab \neq 0. \end{cases}$ | 299. $\begin{cases} \log_4 y \cdot \log_y (y - 3x) = 1, \\ yx^{\log_y x} = x^{2.5}. \end{cases}$ |
| 294. $\begin{cases} \log_5 x + 3^{\log_3 y} = 7, \\ x^y = 5^{12}. \end{cases}$ | 296. $\log_{\frac{1}{2}} \left(\log_{10} \frac{x^2 - x}{x - 3} \right) > 0$ | 298. $\log_a x + \sum_{n=1}^{\infty} \log_{a^{2^n}} x = b$ | 300. $\begin{cases} x + y - \sqrt{\frac{x + y}{x - y}} = \frac{12}{x - y}, \\ xy = 15. \end{cases}$ |
| 301. $\begin{cases} 2 \cdot \log_a x = \log_{\frac{1}{6}} y \cdot \log_{\sqrt{a}} b, \\ a^x b^y = ab. \end{cases}$ | 306. $\begin{cases} \log_2 (x + y) - \log_3 (x - y) = 1, \\ x^2 - y^2 = 2. \end{cases}$ | 310. $\begin{cases} x\sqrt{x} - y\sqrt{y} = a(\sqrt{x} - \sqrt{y}), \\ x^2 + xy + y^2 = b^2, a > 0, b > 0. \end{cases}$ | 311. $\frac{2 \cdot \log_{1-3 x } (42x^2 - 14 x + 1)}{\log_{1-3 x } (x - \frac{5}{6})^2} \leq 1$ |
| 302. $\begin{cases} 3(2 \cdot \log_{y^2} x - \log_{\frac{1}{2}} y) = 10, \\ xy = 81. \end{cases}$ | 307. $\begin{cases} y + \frac{4}{3}\sqrt{x^2 - 6y + 1} = \frac{x^2 + 17}{6}, \\ \frac{x^2 y - 5}{49} = \frac{2}{y} - \frac{12}{x^2} + \frac{4}{9}. \end{cases}$ | 312. $\begin{cases} \log_{12} x \cdot \left(\frac{1}{\log_x 2} + \log_2 y \right) = \log_2 x, \\ \log_2 x \cdot \log_3 (x + y) = 3 \cdot \log_3 x. \end{cases}$ | 313. $\begin{cases} \sqrt{1 - 16y^2} - \sqrt{1 - 16x^2} = 2(x + y), \\ x^2 + y^2 + 4xy = \frac{1}{5}. \end{cases}$ |
| 303. $\begin{cases} \log_{0.5} (y - x) + \log_2 \frac{1}{y} = -2, \\ x^2 + y^2 = 25. \end{cases}$ | 308. $\begin{cases} \frac{2\sqrt{x^2 - 12y + 1}}{3} + y = \frac{x^2 + 17}{12}, \\ \frac{x}{8y} + \frac{2}{3} = \sqrt{\frac{x}{3y} + \frac{1}{4} - \frac{y}{2x}}. \end{cases}$ | 314. $\begin{cases} x \cdot \log_2 y \cdot \log_{\frac{1}{2}} 2 = y\sqrt{y}(1 - \log_x 2), \\ \log_{y^3} 2 \cdot \log_{\sqrt{2}} x = 1. \end{cases}$ | |
| 304. $\begin{cases} \sqrt{x^2 + y^2} + \sqrt{x^2 - y^2} = a^2, \\ \sqrt{x + y} - \sqrt{x - y} = a, a > 0. \end{cases}$ | 309. $\begin{cases} \frac{x + \sqrt{x^2 - y^2}}{x - \sqrt{x^2 - y^2}} + \frac{x - \sqrt{x^2 - y^2}}{x + \sqrt{x^2 - y^2}} = \frac{17}{4}, \\ x(x + y) + \sqrt{x^2 + xy + 4} = 52. \end{cases}$ | | |
| 305. $\begin{cases} y^2 + \sqrt{3y^2 - 2x + 3} = \frac{2}{3}x + 5, \\ 3x - 2y = 5. \end{cases}$ | | | |
| 315. $5^{\log_2 x^2} - 3^{2 \cdot \log_4 \frac{x^2}{2}} = \sqrt{3^{\log_{\sqrt{2}} 2x^2} - 5^{\log_2 x^2 - 1}}$ | 316. $\log_3 (\sqrt{x} + \sqrt{x} - 1) = \log_9 (4\sqrt{x} - 3 + 4 \sqrt{x} - 1)$ | 318. $(\lg \lg x)^2 = -\sqrt{\frac{(m+n)\lg(m-n)}{(m-n)\lg(m+n)} \cdot \lg \log_x 10}$, при $m > n $ | |
| 317. $\sqrt{\log_a^4 \sqrt{ax} + \log_x^4 \sqrt{ax}} + \sqrt{\log_a^4 \sqrt{\frac{x}{a}} + \log_x^4 \sqrt{\frac{a}{x}}} = a$ | 319. $\log_{10} (x^2 - 3x + 2) \log_{\frac{1}{\sqrt{1+x}}} 10 = \log_{10} (x - 3) \log_{\frac{1}{\sqrt{1+x}}} 10 - 2$ | | |

Задание Г. Решить тригонометрическое уравнение, неравенство или систему уравнений

$$320. 2 \cos^2 x + \sin^2 x + \frac{3}{\sqrt{2}} \cos x = 0$$

$$321. 3 \cos^2 \left(x + \frac{\pi}{2}\right) + \cos^2 x - \sqrt{3} \cos x = 0$$

$$322. \cos \left(x - \frac{\pi}{4}\right) (1 - 4 \cos^2 2x) - 2 \cos^4 x = 3$$

$$323. (\sin x - \cos x)^2 - 4 \cos^2 x \sin x = 4 \sin^3 x$$

$$324. 3 \cos x + 2\sqrt{2} \cos^2 x + \sqrt{2} \sin^2 x = 0$$

$$325. 3 \sin x = 2\sqrt{2} \sin^2 x + \sqrt{2} \cos^2 x$$

$$326. \cos^2 x + 3 \sin^2 x + \sqrt{3} \cos x = 0$$

$$327. \cos^2 x + 3 \sin^2 x + 5 \cos x = 0$$

$$328. 5 \cos^2 x + \sin^2 x + 8 \sin x = 0$$

$$329. \cos^2 x + 2 \sin^2 x = \frac{3}{\sqrt{2}} \sin x$$

$$330. \sin^2 x - 3 \cos^2 x + 4 \sin x = 0$$

$$331. \cos^2 x + \sin^4 x = 1$$

$$332. 3 \operatorname{ctg} x + 2 \sin x = 0$$

$$333. \operatorname{tg} x + \operatorname{ctg} x = 2\sqrt{2}$$

$$334. \sqrt{2} \sin x + \operatorname{ctg} x = 0$$

$$335. 11 \operatorname{ctg} x - 5 \operatorname{tg} x = \frac{16}{\sin x}$$

$$336. 3 \cos^2 x + \sin^2 x + 5 \sin x = 0$$

$$337. \frac{1 + \operatorname{tg} x}{1 + \operatorname{ctg} x} = 2 \sin x$$

$$338. \sin x + \sin 5x + \sqrt{3} \sin 3x = 0$$

$$339. \sin 6x - \sin 4x + \sqrt{2} \cos 5x = 0$$

$$340. \sin 5x + \sin x + \cos 2x = 0$$

$$341. \sin 2x + \sin 6x = \sqrt{3} \cos 2x$$

$$342. \sin 5x + \cos 3x - \sin x = 0$$

$$343. \sin 3x - \sin 7x - \sqrt{3} \sin 2x = 0$$

$$344. \cos 3x + \cos 5x + \sqrt{2} \cos 4x = 0$$

$$345. \cos x + \cos 9x + \cos 5x = 0$$

$$346. \cos 3x - \cos x - \sqrt{3} \sin x = 0$$

$$347. \cos 2x + \cos 6x = \cos 4x$$

$$348. \cos 2x - \cos 6x = \cos 4x$$

$$349. \cos x + \sin 4x - \cos 7x = 0$$

$$350. \sin 3x + 3 \sin 4x + \sin 5x = 0$$

$$351. \cos 3x = \cos 5x$$

$$352. \sin 3x - \sin x + \cos 2x = 1$$

$$353. \cos^2 \frac{x}{2} - \sin^2 \frac{x}{2} = \sin^2 2x - \sin^2 4x$$

$$354. \cos 5x + \cos 6x + \cos 7x = 0$$

$$355. \cos 5x - \cos 3x = 3 \sin 4x$$

$$356. \sin 3x + \cos 4x = 2$$

$$357. \sin 3x - \cos 2x = 2$$

$$358. \sin \frac{x}{3} - \sin \frac{x}{4} = 2$$

$$359. \cos 8x \cdot \cos 3x = -1$$

$$360. \sin^3 5x + \sin^4 7x = 2$$

$$361. \sin 4x + |\sin 5x| = 2$$

$$362. \sin 6x \cdot \cos 8x = 1$$

$$363. \cos 4x \cdot \cos 5x = 1$$

$$364. \cos \frac{x}{2} \cdot \cos \frac{x}{5} = 1$$

$$365. \sin \frac{x}{10} \cdot \cos \frac{x}{3} = -1$$

$$366. \cos^2 x - \sin^2 (x\sqrt{3}) = 1$$

$$367. (\sin x + \sqrt{3} \cos x) \cdot \sin 3x = 2$$

$$368. \cos^6 2\pi x - 2 \sin^3 \pi x = 3$$

$$369. \sin x + 2 \sin 2x = 3 + \sin 3x$$

$$370. 5 \cos^2 x + 9 \sin^2 x = 4\sqrt{3} \cos x$$

$$371. 7 \sin^2 x + 3 \cos^2 x = 8 \sin x$$

$$372. \cos^{12} x + (1 + \cos^2 x)^3 \cdot \sin^6 x = 1$$

$$373. \sin^2 x - \sqrt{3} \sin x \cdot \cos x = 0$$

$$374. \sqrt{3} \sin 2x + \cos 2x + 1 = 0$$

$$375. 9 \cos x + 40 \sin x = 41$$

$$376. 5 \sin x + 12 \cos x = 13$$

$$377. \sqrt{3} \sin 2x + \cos 2x = 1$$

$$378. \sin x - \cos x = 1$$

$$379. (\cos 2x - \sin 2x)^2 = 2 \cos^2 x$$

$$380. (\cos 2x + \sin 2x)^2 = 2 \sin^2 x$$

$$381. 8 \operatorname{tg}^2 \frac{x}{2} = 1 + \sec x$$

$$382. 3 \sin x + 4 \cos x + 5 \sin 3x = 0$$

$$383. \operatorname{ctg} x - \operatorname{tg} x = \frac{1}{2} \cdot (\sin x - \cos x)$$

$$384. \frac{1}{\sin x} + \frac{1}{\cos x} = 2\sqrt{2}$$

$$385. \frac{\cos 2x}{1 + \sin 2x} = -1$$

$$386. \frac{1}{\cos x} + \frac{\sqrt{3}}{\sin x} = 4$$

$$387. 3 \cos x + 4 \sin x = 5$$

$$388. 5 \sin x + 12 \cos x = 13$$

$$389. 7 \sin x - 24 \cos x = 25 \sin 2x$$

$$390. \sin \left(\frac{3\pi}{2} - x\right) + \sin \left(\frac{3\pi}{2} + x\right) = 0$$

$$391. \cos x + \sin \left(9x + \frac{\pi}{2}\right) = \cos(5x - \pi)$$

$$392. \cos \left(2x + \frac{3\pi}{2}\right) - \cos \left(3x + \frac{\pi}{2}\right) = 0$$

$$393. \sin \left(x - \frac{3\pi}{2}\right) + \cos(12x + 6\pi) = 0$$

$$394. \cos 3x - \cos x = \sqrt{3} \cos \left(x - \frac{\pi}{2}\right)$$

$$395. \sin \left(\frac{\pi}{2} + x\right) + \operatorname{ctg}(2\pi - x) = 0$$

$$396. \sin 2x = \sin x \cdot \sin \left(\frac{\pi}{6} - x\right)$$

$$397. \frac{\sin 4x}{\sin \left(x - \frac{\pi}{4}\right)} = 2 \sin \left(x + \frac{\pi}{4}\right)$$

$$398. \frac{1}{\cos x} - \frac{1}{\sin x} = 4 \cos \left(\frac{7\pi}{4} - x\right)$$

$$399. \sin 2x = \cos^4 \frac{x}{2} - \sin^4 \frac{x}{2}$$

$$400. \cos^2 x - 2 \cos x = 4 \sin x - \sin 2x$$

$$401. \sin^2 \frac{x}{2} + \cos 2x = 1$$

$$402. 3(\cos x - \sin x) = 1 + \cos 2x - \sin 2x$$

$$403. \sqrt{3} \sin x + \sin 2x = 0$$

$$404. \sin x + \cos x - \cos 2x = 0$$

$$405. \sqrt{2} \sin \frac{x}{2} + 1 + \cos x = 0$$

$$406. 2 \cos^2 x + \sqrt{3} \sin 2x = 0$$

$$407. \sin 4x - \cos 2x = 0$$

$$408. \sin 2x - \sqrt{3} \cos x = 0$$

$$409. \sqrt{2} \sin \frac{x}{2} + 1 = \cos x$$

$$410. 1 + \cos 2x = \operatorname{ctg} x$$

$$411. \sqrt{3} \cos \frac{x}{2} - 1 - \cos x = 0$$

$$412. 2 \cos x + \sin x + \sin 2x + 1 = 0$$

$$413. (2 \cos x + 1) \cdot \cos x = 2 \cos 2x - 1$$

$$414. \cos 6x + 2 \cos^2 x = 1$$

$$415. \sin 4x + 2 \cos^2 x = 1$$

$$416. \sin 2x + \sin x - \sqrt{2} \cos x < \frac{1}{\sqrt{2}}$$

$$417. \sin x + \sin 3x < \sin 5x + \sin 7x$$

$$418. \sin x \geq \cos x$$

$$419. \sin x - 3 \cos x < 0$$

$$420. \sin x + 2 \cos x < 2$$

$$421. 9 \cos 4x + 6 \cos 2x + 5 < 0$$

$$422. 4 \sin 3x + 5 \geq 4 \cos 2x + 5 \sin x$$

$$423. 1 - \sin x + \cos x < 0$$

$$424. \cos 2x + 3 \sin x > -1$$

$$425. \cos 2x > \cos x - \sin x$$

$$426. \sin x + \sin 3x \geq 0$$

$$427. \cos 2x \geq \sin x$$

$$428. \sin x \geq \cos 2x$$

$$429. \operatorname{tg} \frac{1}{1+x^2} \geq 1$$

$$430. 4 \sin x \cdot \sin 2x \cdot \sin 3x \geq \sin 4x$$

$$431. \cos 2x - 2 \sin x + 5 > 0$$

$$432. 2 \sin^2 x - 3 \cos x - 1 \geq 0$$

$$433. \begin{cases} \sin x + \sin y = 0, \\ \cos x + \cos y = 0. \end{cases}$$

$$434. \begin{cases} \cos x \cdot \sin y = -\frac{\sqrt{3}}{4}, \\ \cos x + \sin y = \frac{1 - \sqrt{3}}{2}. \end{cases}$$

$$435. \begin{cases} \operatorname{tg} x + \operatorname{tg} y = 1, \\ \cos x \cdot \cos y = \frac{\sqrt{2}}{2}. \end{cases}$$

$$436. \begin{cases} \operatorname{tg} x = 5 \operatorname{tg} y, \\ \sin x = 3 \sin y. \end{cases}$$

$$437. \begin{cases} \operatorname{tg} x \cdot \operatorname{tg} y = \frac{1}{2}, \\ \sin x \cdot \sin y = \frac{1}{2\sqrt{3}}. \end{cases}$$

$$438. \begin{cases} \operatorname{tg} x \cdot \operatorname{tg} y = 3, \\ \sin x \cdot \sin y = \frac{3}{4}. \end{cases}$$

$$439. \begin{cases} \operatorname{tg} x \operatorname{tg} y = \frac{1}{3}, \\ \sin x \cdot \sin y = \frac{1}{4\sqrt{2}}. \end{cases}$$

$$440. \begin{cases} \frac{\sin x}{\cos x} = \sqrt{3}, \\ \frac{\sin y}{\cos y} = \frac{1}{\sqrt{3}}. \end{cases}$$