Домашнее задание

1.	$\lvert 3x-2\rvert + x = 11$	$\{-4{,}5;\ 3{,}25\}$
2.	$4-5x = \lvert 5x-4\rvert$	$\left(-\infty,\ \frac{4}{5}\right]$
3.	$\lvert x-1\rvert + \lvert x-3\rvert = 2$	$[1,3]$
4.	$\lvert x\rvert - \lvert x-2\rvert = 2$	$[2,+\infty)$
5.	$\lvert 5x-13\rvert - \lvert 6-5x\rvert = 7$	$\left(-\infty,\frac{6}{5}\right]$
6.	$\lvert x+1\rvert - \lvert x\rvert + 3\lvert x-1\rvert - 2\lvert x-2\rvert = \lvert x+2\rvert$	$(-\infty,-2]\cup[2,+\infty)$
7.	$x^2 + 4\lvert x-3\rvert - 7x + 11 = 0$	$\left\{\frac{3+\sqrt{13}}{2},\ \frac{1-\sqrt{29}}{2}\right\}$
8.	$x^2 - 4x + \lvert x-3\rvert + 3 = 0$	$\{2,\ 3\}$
9.	$\begin{cases}\lvert x+3\rvert + \lvert x-2\rvert = 5\\ 818 - 135x \le 137x^2\end{cases}$	$\left[-3,\ -\frac{409}{137}\right]\cup\{2\}$
10.	$\lvert x^2 + 3x\rvert = 2 - x^2$	$\left\{-\frac{2}{3},\frac{1}{2}\right\}$
11.	$\lvert x^2-4\rvert + \lvert 9-x^2\rvert = 5$	$[-3,-2]\cup[2,3]$
12.	$\lvert x^2+2x\rvert - \lvert 2-x\rvert = \lvert x^2-x\rvert$	$x = \frac{-1+\sqrt{5}}{2}$
13.	$\lvert\lvert 3-x\rvert - x + 1\rvert + x = 6$	$\{-2,\ 4\}$
14.	$\lvert 1 + x - \lvert x\rvert\rvert + 2x = -1$	$\left(-\infty,\ -\frac{1}{2}\right]$
15.	$\lvert\lvert 2x-1\rvert - 5\rvert + x = \lvert 6-x\rvert$	$\left[\frac{1}{2},\ 3\right]$
16.	$\lvert\lvert x+3\rvert - \lvert x-1\rvert\rvert = 2 - x^2$	$\{1-\sqrt{5},\ 0\}$
17.	$\frac{\lvert x-3\rvert}{x^2-5x+6} = 2$	$x = 1{,}5$
18.	$\frac{4}{\lvert x+1\rvert - 2} = \lvert x-1\rvert$	$\{-1-2\sqrt{2},\ 3\}$
19.	$\frac{\lvert x-3\rvert}{\lvert x-2\rvert - 1} = 1$	$(3,\ +\infty)$
20.	$\frac{\lvert x^2-4x\rvert + 3}{x^2 + \lvert x-5\rvert} = 1$	$\left\{-\frac{2}{3},\ \frac{1}{2},\ 2\right\}$
21.	$\frac{\lvert x\rvert}{\lvert x-1\rvert} + \lvert x\rvert = \frac{x^2}{\lvert x-1\rvert}$	$\{0\}\cup(1,\ +\infty)$
22.	$\left(x^2 - 2\lvert x\rvert\right)\left(2\lvert x\rvert - 2\right) - 9\frac{2\lvert x\rvert - 2}{x^2 - 2\lvert x\rvert} = 0$	$\{\pm 1,\ \pm 3\}$

23. $|x-7|=-2$ $\varnothing$
24. $|x+2|=0$ $x=-2$
25. $|x-1|=3$ $\{-2,\ 4\}$
26. $|x^2-4x|=0$ $\{0,\ 4\}$
27. $|5x^2-3|=2$ $\left\{\pm\frac{1}{\sqrt{5}},\ \pm 1\right\}$
28. $\left|\frac{3x}{x^2-4}\right|=1$ $\{\pm 1,\ \pm 4\}$
29. $\left|\frac{x^2-1}{x^2+x+1}\right|=1$ $\{-2,\ -0{,}5,\ 0\}$
30. $2x^2-5|x|+3=0$ $\{\pm 1,\ \pm 1{,}5\}$
31. $(x+1)^2+|x+1|-2=0$ $\{-2,\ 0\}$
32. $\left(x^2-5x+6\right)^2-5\left|x^2-5x+6\right|+6=0$ $\left\{1,\ 4,\ \frac{5\pm\sqrt{13}}{2}\right\}$
33. $\big||x+1|-2\big|=1$ $\{-4,\ \pm 2,\ 0\}$
34. $\Big|\big||x-1|+2\big|-1\Big|+1=2$ $x=1$
35. $\big||x-1|+2x-1\big|+1=2$ $x=\pm 1$
36. $\left(|x|^3-8\right)\left(|x|-\sqrt{2}-1+\sqrt{6}\right)=0$ $x=\pm 2$

37. $|x-2|=3|3-x|$ $\left\{\frac{11}{4},\ \frac{7}{2}\right\}$
38. $\left|2x^2-x-10\right|=\left|x^2-8x-22\right|$ $\left\{-4,\ -3,\ \frac{9\pm\sqrt{465}}{6}\right\}$
39. $\left|x^2-9\right|-|x-3|=0$ $\{-4,\ -2,\ 3\}$
40. $|x-2|\,|x+3|\,|x+6|=|x+1|\,|x+4|\,|x+9|$

41. $\left|x^2+4x+3\right|=x+3$ $\{-3,\ -2,\ 0\}$
42. $\left|x^2-6x+8\right|=4-x$ $\{1,\ 3,\ 4\}$
43. $\left|x^2-x-8\right|=x$ $\left\{4,\ 2\sqrt{2}\right\}$
44. $\left|\frac{x^2-10x+21}{x^2-12x+32}\right|=-\frac{x^2-10x+21}{x^2-12x+32}$ $[3,\ 4)\cup[7,\ 8)$

45. $\left|\frac{x^2-10x+16}{x^2-10x+24}\right| = \frac{x^2-10x+16}{x^2-10x+24}$

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

47. $\left|x^2-4x+3\right| = -\left(4+2\sqrt{3}\right)x$ $\quad x=-\sqrt{3}$

48. $\left|x^2+x-1\right| = 2x-1,\ \ x<\frac{\sqrt{3}}{3}$ $\quad x=\frac{-3+\sqrt{17}}{2}$

49. $1+x+\left|x^2-x-3\right| = 0,\ \ x+\frac{\sqrt{14}}{3}<0$ $\quad x=-\sqrt{2}$

50. $\begin{cases} y+x-1=0 \\ |y|-x-1=0 \end{cases}$

51. $\begin{cases} |x-1|+y=0 \\ 2x-y=1 \end{cases}$ $\quad (0,\ -1)$

52. $\begin{cases} |x|+2|y|=3 \\ 5y+7x=2 \end{cases}$ $\quad \left\{\left(-\frac{11}{19},\ \frac{23}{19}\right),\ (1,\ -1)\right\}$

53. $\begin{cases} |2x+1|+|y-2|=4 \\ \frac{y+0{,}4}{x+1{,}3}=3 \end{cases}$ $\quad (0{,}3,\ 4{,}4)$

54. $\begin{cases} |4x-3|+|9-2y|=2 \\ \frac{y-4}{2x-1}=1 \end{cases}$ $\quad (1,\ 5)$

55. $\begin{cases} 3x-y=1 \\ |x-2y|=2 \end{cases}$ $\quad \left\{\left(\frac{4}{5},\ \frac{7}{5}\right),\ (0,\ -1)\right\}$

56. $\begin{cases} 3|y|-2|x|=2{,}9 \\ \frac{2x+13{,}5}{\sqrt{-y-5}}=-\sqrt{-y-5} \end{cases}$ $\quad (-7{,}1,\ -5{,}7)$

57. $\begin{cases} |2-y|-\frac{x}{3}=1 \\ |x-3|=\frac{y}{2}-2 \end{cases}$ $\quad (3,\ 4)$

58. $\begin{cases} |x+y-4|=5 \\ |x-3|+|y-1|=5 \end{cases}$ $\quad (x,\ 9-x),\ \ x\in[3,\ 8]$ $\quad (x,\ -1-x),\ \ x\in[-2,\ 3]$

59. $\begin{cases} |xy-4|=8-y^2 \\ xy=2+x^2 \end{cases}$

60. $\begin{cases} \left|y+\dfrac{1}{x}\right|+\left|\dfrac{13}{6}+x-y\right|=\dfrac{13}{6}+x+\dfrac{1}{x} \\ x^2+y^2=\dfrac{97}{36},\ x<0,\ y>0 \end{cases}$ $\left\{\left(-\dfrac{2}{3},\dfrac{3}{2}\right),\ \left(-\dfrac{3}{2},\dfrac{2}{3}\right)\right\}$