

1) $|2x - 1| = 5$
 $\sim 5 >= 0$
 $\sim |2x - 1| = 5$
 $\sim |2x - 1| = -5$

 $! \sim 5 >= 0$
 $! \sim 2x - 1 = 5$

 $! \sim 5 >= 0$
 $! \sim 2x - 1 = -5$

 $! 2x - 1 = 5$
 $! 2x - 1 = -5$

 $! 2x = 6$
 $! 2x = -4$

 $! x = 3$
 $! x = -2$
Ответ: 3; -2

3) $|-x^2 - 2x + 1| = 1$
 $\sim -1 >= 0$
 $\sim !-x^2 - 2x + 1 = 1$
 $\sim !-x^2 - 2x + 1 = -1$

 $!-x^2 - 2x + 1 = 1$
 $!-x^2 - 2x + 1 = -1$

 $!-x^2 - 2x = 0$
 $!-x^2 - 2x + 2 = 0$

 $!-x(x+2) = 0$
 $!D = 1 + 2 = 3$

 $!x = 0; x = -2$
 $!x = (1 - \sqrt{3}) / -1 = (\sqrt{3} - 1);$
 $x = (1 + \sqrt{3}) / -1 = (-1 - \sqrt{3})$
Ответ: 0; -2; $(\sqrt{3} - 1)$; $(-1 - \sqrt{3})$

5) $|x + 2| = 2(3 - x)$
 $|x + 2| = 6 - 2x$
 $\sim 6 - 2x >= 0$
 $\sim !x + 2 = 6 - 2x$
 $\sim !x + 2 = 2x - 6$

 $! \sim 6 - 2x >= 0$
 $! \sim x + 2 = 6 - 2x$

 $! \sim 6 - 2x >= 0$
 $! \sim x + 2 = 2x - 6$

 $! \sim 6 - 2x >= 0$
 $! \sim x + 2 = 2x - 6$

 $! \sim 6 - 2x >= 0$
 $! \sim x + 2 = 2x - 6$

 $6 >= 2x$
 $x <= 3$
 $3x - 4 = 0$
 $x = 4/3$

 $\sim 6 - 2x >= 0$
 $\sim x + 2 = 2x - 6$
 $x <= 3$
 $x - 8 = 0$
 $x = 8$
Ответ: 4/3

6) $|x^2 + 4x + 2| = (5x + 16) / 3$
 $(5x + 16) / 3 >= 0$

 $x^2 + 4x + 2 = (5x + 16) / 3$
 $x^2 + 4x + 2 = -(5x + 16) / 3$

 $3x^2 + 12x + 6 = 5x + 16$
 $3x^2 + 12x + 6 = -5x - 16$

 $3x^2 + 7x - 10 = 0$
 $x_1 = 1$
 $x_2 = -10/3$

 $3x^2 + 17x + 22 = 0$
 $D = 289 - 264 = 25$
 $x_1 = (-17 - 5) / 6 = -11/3$
 $x_2 = (-17 + 5) / 6 = -2$

 $(5x + 16) / 3 >= 0$
 $5x + 16 >= 0$
 $5x >= -16$
 $x >= -16/5$
Ответ: 1; -2

7) $|1 + x - x^2| = 2x^2 + x - 4$
 $\sim 2x^2 + x - 4 >= 0$
 $\sim !1 + x - x^2 = 2x^2 + x - 4$
 $\sim !1 + x - x^2 = 4 - 2x^2 - x$

 $! \sim 2x^2 + x - 4 >= 0$
 $! \sim 1 + x - x^2 = 2x^2 + x - 4$

 $! \sim 2x^2 + x - 4 >= 0$
 $! \sim 1 + x - x^2 = 4 - 2x^2 - x$

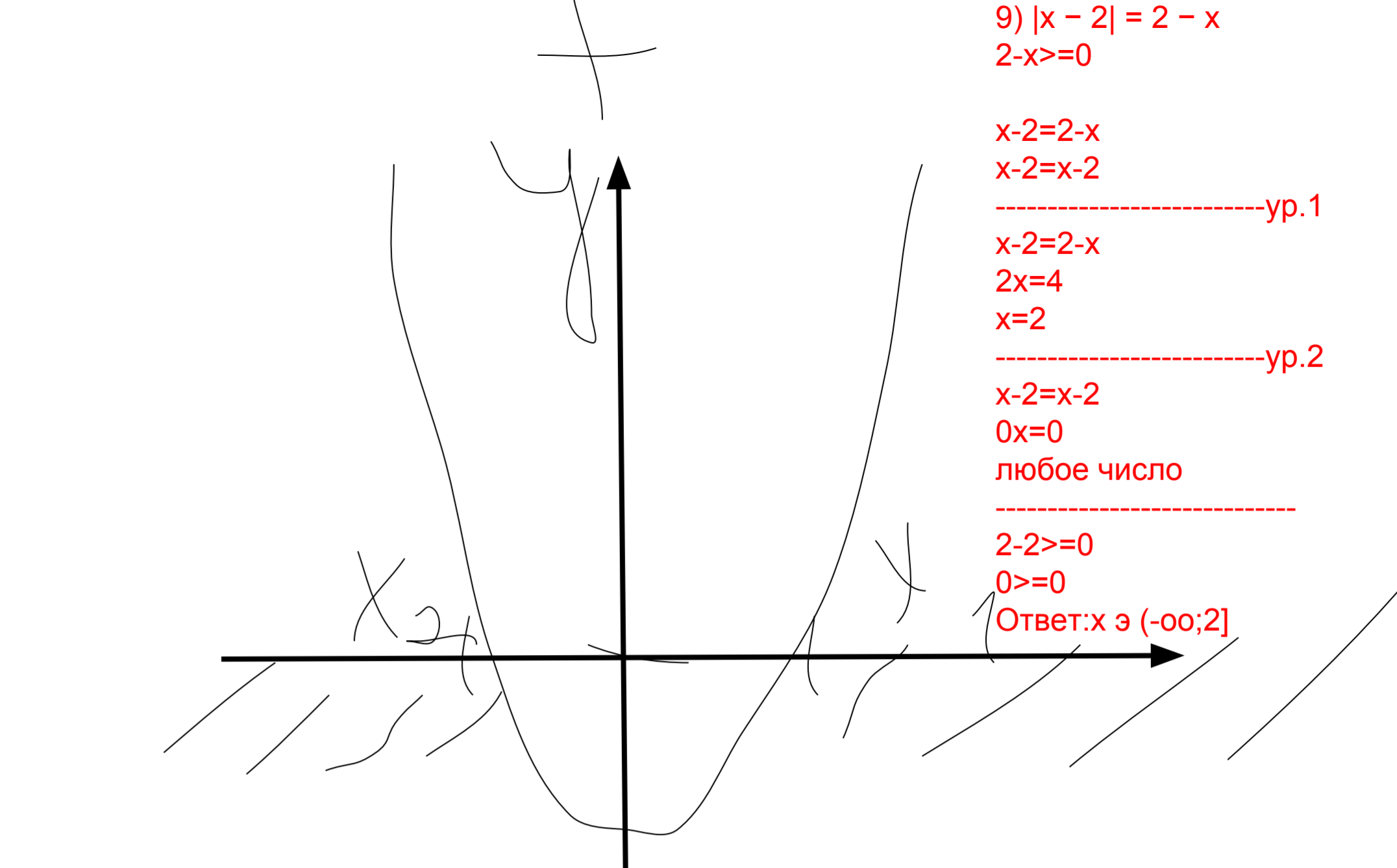
 $2x^2 + x - 4 >= 0$
 $\sim D = 33$
 $x_1 = (1 - \sqrt{33}) / -4$
 $x_2 = (1 + \sqrt{33}) / -4$

 $\sim 3x^2 - 5 = 0$
 $x^2 = 5/3$
 $x = \sqrt{5/3}$
 $x = -\sqrt{5/3}$

 $-V(5/3) > (1 + \sqrt{33}) / -4$
 $V(5/3) > (1 + \sqrt{33}) / 4$
 $4V(5/3) > (1 + \sqrt{33})$
 $16 * 5/3 > 1 + 33 + 2\sqrt{33}$
 $16 * 5/3 - 34 > 2\sqrt{33}$
 $-22/3 > 2\sqrt{33}$

 $V(5/3) > (\sqrt{33} - 1) / 4$
 $4V(5/3) > \sqrt{33} - 1$
 $16 * 5/3 > 33 - 2\sqrt{33} + 1$
 $-22/3 > -2\sqrt{33}$
 $22/3 > 2\sqrt{33}$
 $22 > 6\sqrt{33}$
 $484 < 36 * 33$

 $! \sim 1 + x - x^2 = 4 - 2x^2 - x$
 $x^2 + 2x - 3 = 0$
 $x_1 = -3$
 $x_2 = 1$
Ответ: -3, $\sqrt{5/3}$



8) $|3x^2 + 5x - 4| = 2x - 1$
 $2x - 1 >= 0$

 $\sim !3x^2 + 5x - 4 = 2x - 1$
 $\sim !3x^2 + 5x - 4 = 1 - 2x$

 $! \sim 3x^2 + 5x - 4 = 2x - 1$
 $! \sim 3x^2 + 5x - 4 = 1 - 2x$

 $! \sim 3x^2 + 3x - 3 = 0$
 $! \sim 3x^2 + 7x - 5 = 0$

 $x^2 + x - 1 = 0$
 $D = 1 + 4 = 5$
 $x_1 = (-1 - \sqrt{5}) / 2$
 $x_2 = (-1 + \sqrt{5}) / 2$

 $3x^2 + 7x - 5 = 0$
 $D = 49 + 60 = 109$
 $x_1 = (-7 - \sqrt{109}) / 6$
 $x_2 = (-7 + \sqrt{109}) / 6$

неравенство
 $2x - 1 >= 0$
 $x >= 1/2$
Ответ: $(-1 + \sqrt{5}) / 2$; $(-7 + \sqrt{109}) / 6$

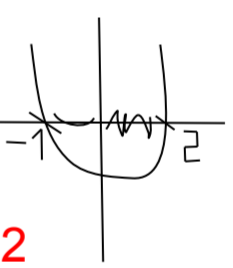
10) $|x^2 - x - 2| = x + 2 - x^2$
 $x - x^2 + 2 >= 0$

 $x^2 - x - 2 = x + 2 - x^2$
 $x^2 - x - 2 = x^2 - x - 2$

 $2x^2 - 2x - 4 = 0$
 $x^2 - x - 2 = 0$
 $x_1 = 2$
 $x_2 = -1$

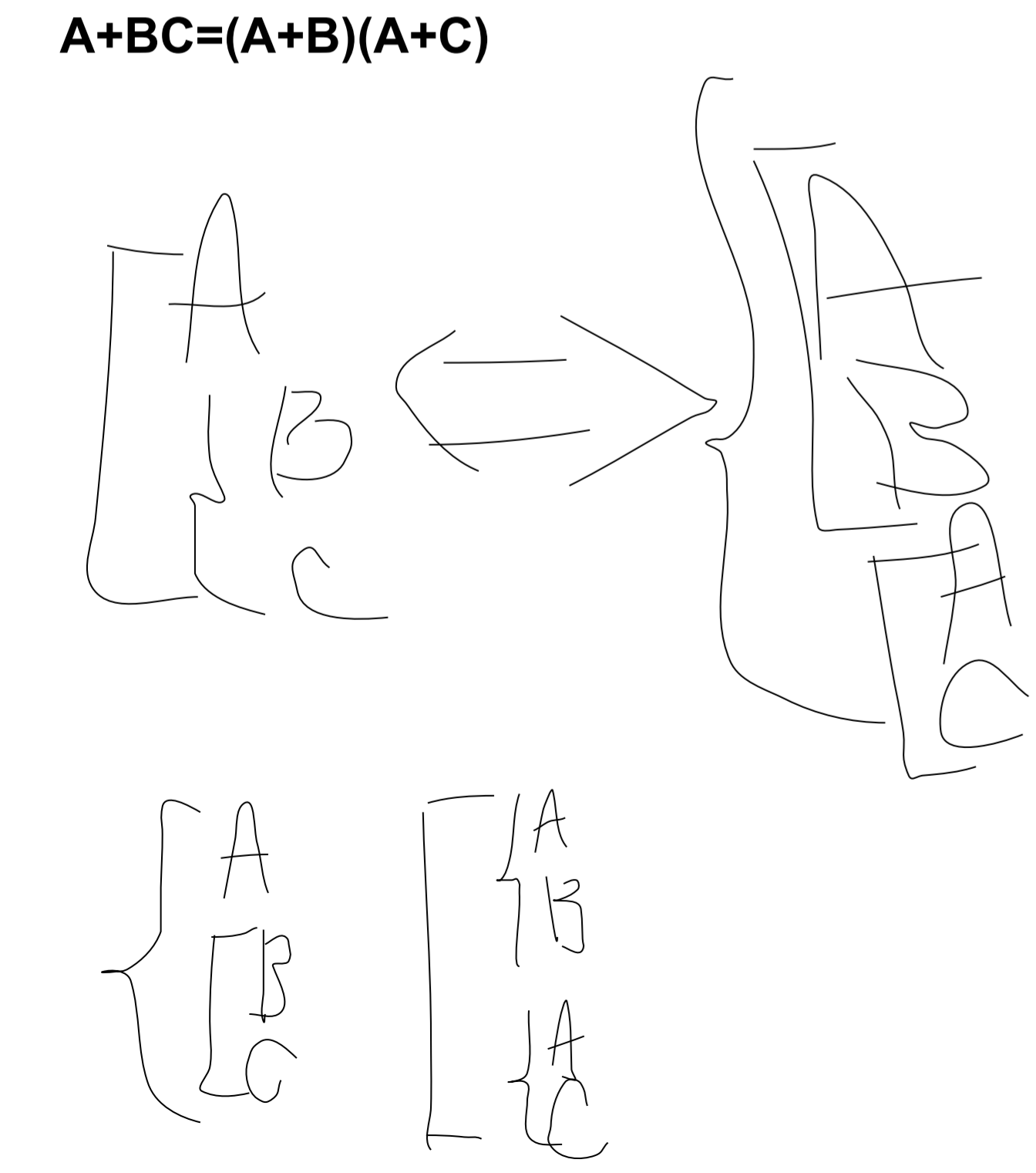
 $0x^2 - 0x + 0 = 0$
 x - любое число

 $x - x^2 + 2 >= 0$
 $x^2 - x - 2 <= 0$
Ответ: $x \in [-1; 2]$



$x^2 - 5x + 6 = 0$
 $(x - 2)(x - 3) = 0$
 $x - 2 = 0$ или $x - 3 = 0$

$A * (B + C) = A * B + A * C$
 \cap = * & \cup = ^ = пересечение = система
 \cup = + = || = V = объединение = совокупность = U
 A, B, C - логические выражения (например A ($x > 0$))



2) $|2 - 3x| = 1$
 $\sim -1 >= 0$

 $\sim !2 - 3x = 1$
 $\sim !2 - 3x = -1$

 $! \sim 2 - 3x = 1$
 $! \sim 2 - 3x = -1$

 $! 2 - 3x = 1$
 $! 2x - 3x = -1$

 $3x = 1$
 $3x = 3$
 $x = 1/3$
 $x = 1$

4) $|2x - 5| = x - 1$
 $\sim x - 1 >= 0$

 $\sim !2x - 5 = x - 1$
 $\sim !2x - 5 = 1 - x$

 $! \sim 2x - 5 = x - 1$
 $! \sim 2x - 5 = 1 - x$

 $! \sim x - 4 = 0$
 $! \sim 3x - 6 = 0$

 $x = 4$
 $x = 2$

 $a = b$ или $a = -b$

