

$$1) x^2 - 7|x| + 6 = 0$$

$$|x|^2 - 7|x| + 6 = 0$$

$$t = |x|$$

$$t^2 - 7t + 6 = 0$$

$$x_1 = 1$$

$$x_2 = 6$$

$$|x| = 1$$

$$|x| = 6$$

$$x = 1 \quad x = -1$$

$$x = 6 \quad x = -6$$

ОТВЕТ: 1; -1; 6; -6

$$2) (x + 3)^2 - |x + 3| - 30 = 0$$

$$|x + 3| = t$$

$$t^2 - t - 30 = 0$$

$$t_1 = 6$$

$$t_2 = -5$$

$$|x + 3| = 6$$

$$x + 3 = 6$$

$$x = 3$$

$$x + 3 = -6$$

$$x = -9$$

У $t_2 = -5$ решений нет
 Ответ: 3; -9

$$3) x^2 + 2x + 2|x + 1| = 7$$

$$x^2 + 2x + 1 - 1 + 2|x + 1| = 7$$

$$(x + 1)^2 - 1 + 2|x + 1| = 7$$

$$|x + 1|^2 - 1 + 2|x + 1| = 7$$

$$|x + 1| = t$$

$$t^2 + 2t - 8 = 0$$

$$t_1 = -4$$

$$t_2 = 2$$

$$|x + 1| = 2$$

$$x + 1 = 2 \quad x + 1 = -2$$

$$x = 1 \quad x = -3$$

ОТВЕТ: 1; -3

$$|a + b| \leq |a| + |b|$$

$$4) 4x^2 - 12x - 5|2x - 3| + 15 = 0$$

$$4x^2 - 12x + 15 = 5|2x - 3|$$

$$4x^2 - 12x + 9 + 6 = 5|2x - 3|$$

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

$$|2x - 3| = t$$

$$t^2 - 5t + 6 = 0$$

$$t_1 = 2$$

$$t_2 = 3$$

$$2x - 3 = 2$$

$$2x = 5$$

$$x = 5/2$$

$$2x - 3 = -2$$

$$2x = 1$$

$$x = 1/2$$

$$2x - 3 = 3$$

$$2x = 6$$

$$x = 3$$

$$2x - 3 = -3$$

$$2x = 0$$

$$x = 0$$

ОТВЕТ: 5/2; 1/2; 3; 0

$$5) x^4 + 4x^3 = 30 - 7|x^2 + 2x| - 4x^2$$

$$x^4 + 4x^3 + 4x^2 = 30 - 7|x^2 + 2x|$$

$$(x^2 + 2x)^2 = 30 - 7|x^2 + 2x|$$

$$|x^2 + 2x| = t$$

$$t^2 + 7t - 30 = 0$$

$$x_1 = -10$$

$$x_2 = 3$$

$$x^2 + 2x = 3$$

$$x^2 + 2x = -3$$

$$x^2 + 2x - 3 = 0$$

$$x^2 + 2x + 3 = 0$$

$$x_1 = -3$$

$$x_2 = 1$$

$$D_2 = 1 - 3 = -2$$

ОТВЕТ: -3; 1

