

Math 6c, homework 25



1. Solve the equations. These equations don't have constant term, they can be easily factorized:

Example:

$$x^2 + 5x = 0$$

$$x(x + 5) = 0$$

$$x = 0, \text{ or } x + 5 = 0, \quad x = -5$$

$$a. x^2 - 12x = 0; \quad b. 2x^2 - 9x = 0; \quad c. -x^2 + 8x = 0$$

$$d. 3x - x^2 = 0; \quad e. -2x^2 + 7x = 0; \quad f. 19x - x^2 = 0$$

2. Solve the equations. These equations don't have term with x ; they also can be easily factorized with difference of two squares identity:

Examples:

$$4x^2 - 36 = 0$$

$$(2x)^2 - 6^2 = 0$$

$$(2x - 6)(2x + 6) = 0$$

$$2x - 6 = 0 \quad \text{or} \quad 2x + 6 = 0$$

$$2x = 6 \quad \quad \quad 2x = -6$$

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

$$x^2 - 7 = 0;$$

$$x^2 - (\sqrt{7})^2 = 0;$$

$$(x - \sqrt{7})(x + \sqrt{7}) = 0$$

$$x - \sqrt{7} = 0 \quad \text{or} \quad x + \sqrt{7} = 0$$

$$x = \sqrt{7} \quad \quad \quad x = -\sqrt{7}$$

$$a. x^2 - 9 = 0; \quad b. x^2 - 5 = 0; \quad c. x^2 - 10 = 0 \quad d. x^2 - 64 = 0$$

$$e. -x^2 + 4 = 0; \quad f. -2x^2 + 50 = 0; \quad g. x^2 - 10 = 0 \quad d. x^2 - 64 = 0$$

3. Solve the equations (remember, the product is equal to 0 only if one of the factors is equal to 0):

$$a. (x - 2)(x + 4) = 0;$$

$$b. (x + 3.5)(x - 7)(x^2 + 9) = 0;$$

$$c. (x + 2.8)(x + 1.3) = 0$$

$$d. \left(x - \frac{1}{2}\right)\left(x - \frac{1}{5}\right)(x^2 + 1) = 0$$

4. Represent as a polynomial:

$$a. (x^2 + xy - y^2)(x + y);$$

$$b. (n^2 - np + y^2)(n - p)$$

5. Simplify the expressions:

a. $5b^2 + (a^2 + 5b)(ab - b^2)$; b. $(a - b)(a + 2) - (a + b)(a - 2)$;

c. $(x + y)(x - y) - (x - 1)(x - 2)$;

6. Which inequalities describe the points with coordinates inside the shaded areas in the pictures?

