

Irrational inequalities

Homework

№1. Solve the following inequalities by method of a careful look:

$$1. \quad \sqrt{x-8} - \sqrt{x+2} < 0;$$

$$2. \quad \sqrt{9-x^2} < -|x^2+4x+3|;$$

$$3. \quad \sqrt{x-1} > x+1;$$

$$4. \quad \frac{\sqrt[4]{x^4+16} + \sqrt{x^3+8}}{2-x} < 0;$$

$$5. \quad \sqrt{x+1} + \sqrt{x-2} \geq \sqrt{2-x}.$$

№2. Solve the following inequalities:

$$1. \quad \sqrt{5-x^2} > x-1;$$

$$2. \quad x^2 \geq x \left(2 + \sqrt{12-2x-x^2} \right);$$

$$3. \quad 1-x < \sqrt{x^2-2x};$$

$$4. \quad \sqrt{3x-x^2} < 4-x;$$

$$5. \quad \sqrt{x}-3 \leq \frac{2}{\sqrt{x-2}};$$

$$6. \quad \frac{\sqrt{2x-1}}{x-2} < 1;$$

$$7. \quad \frac{1-\sqrt{1-4x^2}}{x} < 3.$$

№3. Solve the following inequalities:

$$1. \quad \frac{3}{\sqrt{2-x}} - \sqrt{2-x} < 2;$$

$$2. \quad \sqrt{2x-x^2} \leq x-2.$$

№4. Solve an inequality:

$$\sqrt{4-x^2} + \frac{|x|}{x} \geq 0$$