

Să se rezolve în  $\mathbb{R}$  ecuațiile:

$$1) \quad x + 7 = 1009$$

$$x = 1009 - 7$$

$$x = 1002.$$

$$2) \quad 5x + 7 = 123 + 3x$$

$$5x - 3x = 123 - 7$$

$$2x = 116$$

$$x = \frac{116}{2} = 58$$

$$3) \quad 2(3x + 1) + 11 = 4(2x + 3) + 2.$$

$$2 \cdot 3x + 2 \cdot 1 + 11 = 4 \cdot 2x + 4 \cdot 3 + 2$$

$$6x + 2 + 11 = 8x + 12 + 2$$

$$6x - 8x = 12 + 2 - 2 - 11$$

$$-2x = 1$$

$$x = \frac{1}{-2}.$$

$$4) \quad x^2 - 9x + 8 = 0$$

$$1 \cdot x^2 + (-9) \cdot x + 8 = 0$$

$$a = 1, \quad b = -9, \quad c = 8$$

$$\Delta = b^2 - 4ac = (-9)^2 - 4 \cdot 1 \cdot 8 = 81 - 32 = 49$$

$$\Delta = 49; \quad \sqrt{\Delta} = \sqrt{49} = \sqrt{7^2} = 7.$$

$$x_{1,2} = \frac{-b \pm \sqrt{\Delta}}{2 \cdot a} = \frac{-(-9) \pm 7}{2 \cdot 1}$$

pag 2

$$x_{1,2} = \frac{9 \pm 7}{2} \begin{cases} x_1 = \frac{9-7}{2} = \frac{2}{2} = 1 \\ x_2 = \frac{9+7}{2} = \frac{16}{2} = 8 \end{cases}$$

Deci  $\Delta > 0$  ecuatia are doua solutii:  $x_1 = 1, x_2 = 8$

$$5) \quad 2x^2 + 1x + 11 = 0$$

$$a = 2, b = 1, c = 11$$

$$\Delta = b^2 - 4ac = (1)^2 - 4 \cdot 2 \cdot 11 = 1 - 88 = -87 < 0$$

$\Delta = -87 < 0$  ecuatia nu are solutii reale

$$6) \quad 2x^2 - 4x + 2 = 0$$

$$a = 2, b = -4, c = 2$$

$$\Delta = b^2 - 4ac = (-4)^2 - 4 \cdot 2 \cdot 2 = 16 - 16 = 0$$

$$\Delta = 0; \quad x_{1,2} = \frac{-b \pm \sqrt{\Delta}}{2 \cdot a} = \frac{-(-4) \pm \sqrt{0}}{2 \cdot 2} = \frac{4 \pm 0}{4}$$

$$x_1 = \frac{4-0}{4} = \frac{4}{4} = 1; \quad x_2 = \frac{4+0}{4} = \frac{4}{4} = 1.$$

Deci  $\Delta = 0$  ecuatia are doua radacini egale

$$x_1 = x_2 = 1$$

Reprezentati grafic functia:

$$f: \mathbb{R} \rightarrow \mathbb{R}; \quad f(x) = 2x + 3.$$

$$x=0; \quad f(0) = 2 \cdot 0 + 3 = 0 + 3 = 3 \quad A(0, 3)$$

$$x=1; \quad f(1) = 2 \cdot 1 + 3 = 2 + 3 = 5; \quad B(1, 5)$$

