

KVADRATNA JEDNADŽBA (mCh)

$a \cdot x^2 + c = 0$	$a \cdot x^2 + b \cdot x = 0$	$a \cdot x^2 + b \cdot x + c = 0$
$a \cdot x^2 = -c$ $a \cdot x^2 = -c \quad / : a$ $x^2 = -\frac{c}{a}$ $x^2 = -\frac{c}{a} \quad / \sqrt{}$ $x_{1,2} = \pm \sqrt{-\frac{c}{a}}$	$a \cdot x^2 + b \cdot x = 0$ $x \cdot (a \cdot x + b) = 0$ $x = 0 \quad , \quad a \cdot x + b = 0$ $a \cdot x = -b$ $a \cdot x = -b \quad / : a$ $x_1 = 0 \quad , \quad x_2 = -\frac{b}{a}$	$a \cdot x^2 + b \cdot x + c = 0$ $x_1 = \frac{-b + \sqrt{b^2 - 4 \cdot a \cdot c}}{2 \cdot a}$ $x_2 = \frac{-b - \sqrt{b^2 - 4 \cdot a \cdot c}}{2 \cdot a}$ <p style="text-align: center;">ili</p> $x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4 \cdot a \cdot c}}{2 \cdot a}$
$x_{1,2} = \pm \sqrt{-\frac{c}{a}}$	$x_1 = 0 \quad , \quad x_2 = -\frac{b}{a}$	$x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4 \cdot a \cdot c}}{2 \cdot a}$
<p style="text-align: center;">Primjer</p> $2 \cdot x^2 + 50 = 0$ $2 \cdot x^2 = -50$ $2 \cdot x^2 = -50 \quad / : 2$ $x^2 = -25$ $x^2 = -25 \quad / \sqrt{}$ $x_{1,2} = \pm \sqrt{-25}$ $x_{1,2} = \pm 5 \cdot i$	<p style="text-align: center;">Primjer</p> $3 \cdot x^2 + 12 \cdot x = 0$ $x \cdot (3 \cdot x + 12) = 0$ $x = 0 \quad , \quad 3 \cdot x + 12 = 0$ $3 \cdot x = -12$ $3 \cdot x = -12 \quad / : 3$ $x_1 = 0 \quad , \quad x_2 = -4$	<p style="text-align: center;">Primjer</p> $x^2 - 4 \cdot x + 3 = 0$ $a = 1 \quad , \quad b = -4 \quad , \quad c = 3$ $x_{1,2} = \frac{-(-4) \pm \sqrt{(-4)^2 - 4 \cdot 1 \cdot 3}}{2 \cdot 1}$ $x_{1,2} = \frac{4 \pm \sqrt{16 - 12}}{2}$ $x_{1,2} = \frac{4 \pm \sqrt{4}}{2}$ $x_{1,2} = \frac{4 \pm 2}{2}$ $x_1 = \frac{4+2}{2} \quad , \quad x_2 = \frac{4-2}{2}$ $x_1 = \frac{6}{2} \quad , \quad x_2 = \frac{2}{2}$ $x_1 = 3 \quad , \quad x_2 = 1$

Kvadratna jednadžba s rješenjima x_1 i x_2 glasi

$$a \cdot (x - x_1) \cdot (x - x_2) = 0$$

gdje je $a \neq 0$ po volji odabrani broj.

Primjer

Napiši kvadratnu jednadžbu s rješenjima $x_1 = 3$ i $x_2 = -5$.

$$a \cdot (x - x_1) \cdot (x - x_2) = 0 \Rightarrow a \cdot (x - 3) \cdot (x - (-5)) = 0 \Rightarrow a \cdot (x - 3) \cdot (x + 5) = 0 \Rightarrow$$

$$\Rightarrow a \cdot (x^2 + 5 \cdot x - 3 \cdot x - 15) = 0 \Rightarrow a \cdot (x^2 + 2 \cdot x - 15) = 0.$$

Koeficijent a može biti bilo koji broj (osim nule). Uzmimo da je $a = 1$. Tražena kvadratna jednadžba glasi

$$x^2 + 2 \cdot x - 15 = 0.$$