

II. PISANA PROVJERA ZNANJA
KVADRATNE JEDNADŽBE

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1. Riješi jednačbe :

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

$$3x^2 - 4x = 0$$

$$3x^2 - \frac{1}{3} = 0$$

$$\frac{6}{x+1} = x-1$$

2. Riješi jednačba po : a) x ; b) y

$$3x^2 - 2xy + 4y^2 = 0$$

3. Za koju vrijednost parametra c jednačica $x^2 - 5x + c - 1 = 0$ nema realna rješenja?

4. Riješi:

$$\left(x - \frac{1}{x}\right)^2 - 3\left(x - \frac{1}{x}\right) - 4 = 0$$

5. Riješi sustav jednačica:

$$xy = 12$$

$$x - 2y - 2 = 0$$

6. Riješi:

$$\sqrt{x + \sqrt{x+3}} = 3$$

7. Širina pravokutnika manja je od njegove dužine za 5 cm. Ako je površina pravokutnika 204 cm^2 , kolike su dužine njegovih stranica?

$$1. \quad x^2 - 5x + 6 = 0$$

$$x_{1,2} = \frac{5 \pm \sqrt{25 - 24}}{2}$$

$$x_1 = 3 \quad (+1)$$

$$x_2 = 2 \quad (+1)$$

$$3x^2 - 4x = 0$$

$$x(3x - 4) = 0$$

$$x_1 = 0 \quad (+1)$$

$$3x - 4 = 0$$

$$3x = 4 / :3$$

$$x_2 = \frac{4}{3} \quad (+1)$$

$$3x^2 - \frac{1}{3} = 0$$

$$3x^2 = \frac{1}{3} / :3$$

$$x^2 = \frac{1}{9} / \sqrt{\quad} \quad (+1)$$

$$x = \pm \frac{1}{3}$$

$$x_1 = \frac{1}{3} \quad x_2 = -\frac{1}{3} \quad (+1)$$

$$\frac{6}{x+1} = x-1 \quad / \cdot (x+1) \neq 0$$

$$x \neq -1$$

$$x^2 - 1 = 6 \quad (+1)$$

$$x^2 = 7 / \sqrt{\quad}$$

$$x = \pm \sqrt{7} \quad (+1)$$

2.

$$3x^2 - 2xy + 4y^2 = 0$$

$$x_{1,2} = \frac{2y \pm \sqrt{4y^2 - 48y^2}}{6}$$

$$= \frac{2y \pm 2y\sqrt{11}i}{6}$$

$$= \frac{y \pm y\sqrt{11}i}{3} \quad (+1)$$

$$y_{1,2} = \frac{2x \pm \sqrt{4x^2 - 48x^2}}{6}$$

$$= \frac{2x \pm 2x\sqrt{11}i}{6}$$

$$= \frac{x \pm x\sqrt{11}i}{3} \quad (+1)$$

$$3. x^2 - 5x + c - 1 = 0$$

$$D < 0 \quad (+1)$$

$$25 - 4(c - 1) < 0$$

$$25 - 4c + 4 < 0$$

$$-4c < -29 \quad /: (-4) \quad (+1)$$

$$c > \frac{29}{4}$$

$$c \in \left(\frac{29}{4}, +\infty \right) \quad (+1)$$

$$4. \left(x - \frac{1}{x}\right)^2 - 3\left(x - \frac{1}{x}\right) - 4 = 0$$

$$t = x - \frac{1}{x}$$

$$t^2 - 3t - 4 = 0 \quad (+1)$$

$$\begin{array}{c} / \quad \backslash \\ 1 \quad -4 \end{array}$$

$$t_1 = -1$$

$$t_2 = 4$$

$$x - \frac{1}{x} = -1 \quad /: x \neq 0$$

$$x - \frac{1}{x} = 4 \quad /: x \neq 0$$

$$x^2 - 1 = -x$$

$$x^2 - 1 = 4x$$

$$x^2 - 1 + x = 0$$

$$x^2 - 1 = 4x$$

$$x^2 - 4x - 1 = 0$$

$$x_{1,2} = \frac{-1 \pm \sqrt{5}}{2} \quad (+1)$$

$$x_3 = 2 + \sqrt{5} \quad (+1)$$

$$x_4 = 2 - \sqrt{5}$$

$$5. xy = 12 \quad \longrightarrow \quad x = \frac{12}{y}$$

$$x - 2y - 2 = 0$$

$$\frac{12}{y} - 2y^2 - 2y = 0 \quad /: y \neq 0$$

$$12 - 2y^2 - 2y = 0 \quad (+1)$$

$$-2y^2 - 2y + 12 = 0 \quad /: (-2)$$

$$y^2 + y - 6 = 0$$

$$\begin{array}{c} / \quad \backslash \\ -2 \quad 3 \end{array}$$

$$y_1 = 2$$

$$y_2 = -3 \quad (+1)$$

$$x_1 = \frac{12}{2} = 6$$

$$x_2 = \frac{12}{-3} = -4 \quad (+1)$$

$$6. \sqrt{x + \sqrt{x+3}} = 3/2$$

$$x + \sqrt{x+3} = 9$$

$$\sqrt{x+3} = 9 - x$$

$$x+3 = 81 - 18x + x^2 \quad (+1)$$

$$-x^2 + 19x - 78 = 0$$

FORMULA

$$x_1 = 13 \quad x \quad (+1)$$

$$x_2 = 6 \quad \checkmark$$

PROVERA:

$$\sqrt{13 + \sqrt{13+3}} = 3$$

$$\sqrt{17} \neq 3 \quad x$$

(+1)

$$\sqrt{6 + \sqrt{6+3}} = 3$$

$$9 = 9 \quad \checkmark$$

7.



$$a = b - 5$$

$$a \cdot b = 204$$

$$a, b = ?$$

(+1)

$$(b-5) \cdot b = 204$$

$$b^2 - 5b - 204 = 0$$

$$b_1 = 17$$

~~$$b_2 = -12$$~~

(+1)

$$a = b - 5$$

$$a = 17 - 5$$

$$a = 12$$

(+1)

