

2. PISANA PROVJERA

① Riješi jednačbe:

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

$$3x^2 = \frac{1}{3} \quad | \cdot \frac{1}{3}$$

$$x^2 = \frac{1}{9} \quad | \sqrt{\quad}$$

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

b) $10x^2 + 3x - 4 = 0$

$$x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= \frac{-3 \pm \sqrt{3^2 + 4 \cdot 10 \cdot 4}}{2 \cdot 10}$$

$$= \frac{-3 \pm \sqrt{9 + 160}}{20}$$

$$= \frac{-3 \pm \sqrt{169}}{20}$$

$$= \frac{-3 \pm 13}{20}$$

$$x_1 = \frac{10}{20} = \frac{1}{2}$$

$$x_2 = \frac{-16}{20} = -\frac{4}{5}$$

c) $3x^2 + x = 0$

$$x(3x+1) = 0 \rightarrow \begin{matrix} 3x+1=0 \\ 3x=-1 \end{matrix}$$

$$x_1 = 0$$

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

$$x_2 = -\frac{1}{3}$$

②

a) $9x^2 - 4(3x+2)^2$

$$9x^2 - 4 = 9x^2 + 12x + 4$$

$$-12x = 8 \quad | : (-12)$$

$$x = \frac{-8}{12} = -\frac{2}{3}$$

b) $(1-3x)^2 = x^2 + 6x + 9$

$$1 - 6x + 9x^2 = x^2 + 6x + 9$$

$$1 - 6x + 9x^2 - x^2 - 6x - 9 = 0$$

$$8x^2 - 12x - 8 = 0 \quad | : 4$$

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

$$x_{1,2} = \frac{3 \pm \sqrt{-3^2 + 4 \cdot 2 \cdot 2}}{4}$$

$$= \frac{3 \pm \sqrt{9 + 16}}{4} \rightarrow \sqrt{25}$$

$$= \frac{3 \pm 5}{4}$$

$$x_1 = \frac{8}{4} = 2$$

$$x_2 = -\frac{2}{4} = -\frac{1}{2}$$

5

$$(2p-1)x^2 - 2(p+1)x + p-1 = 0 \quad D > 0$$

$$(-2(p+1))^2 - 4(2p-1)(p-1) > 0$$

$$4(p+1)^2 + (-8p+4)(p-1) > 0$$

$$4(p^2 + 2p + 1) + (-8p^2 + 8p + 4p - 4) > 0 \quad (+1)$$

$$4p^2 + 8p + 4 - 8p^2 + 8p + 4p - 4 > 0$$

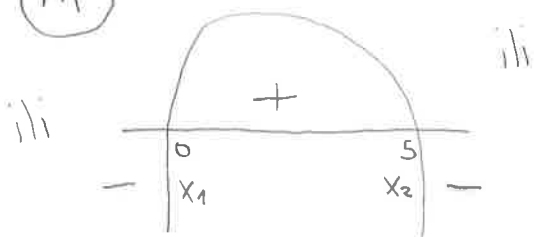
$$-4p^2 + 20p > 0$$

$$4p(-p+5) > 0$$

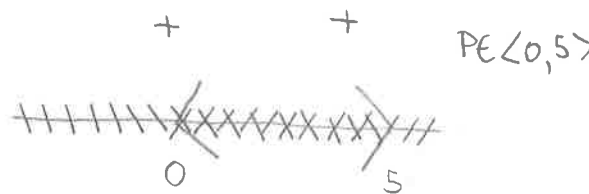
$$p_1 = 0$$

$$p_2 = 5$$

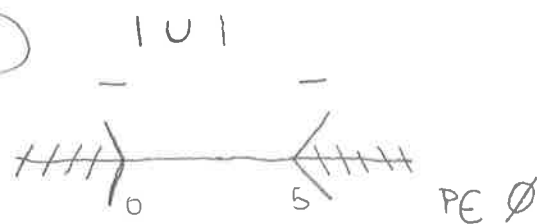
(+1)



$P \in \langle 0, 5 \rangle$



(+1)



$P \in \emptyset$

6

$$\begin{cases} x + y = 1 \rightarrow x = 1 - y \\ (x - 1)(y - 1) = -2 \end{cases}$$

(+1)

$$y_1 = 2$$

$$x_1 = 1 - 2$$

$$x_1 = -1$$

$$y_2 = -1$$

$$x_2 = 1 + 1$$

$$x_2 = 2$$

$$(1 - y - 1)(y - 1) = -2$$

$$-y(y - 1) = -2$$

(+1)

$$-y^2 + y = -2$$

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

$$y^2 - y - 2 = 0$$

$$\begin{array}{r} / \quad \backslash \\ -2 \quad 1 \end{array}$$