

NEROVNICE V SÚČINOVOM A PODIELOVOM TVARE

• V SÚČINOVOM TVARE

- a) $(x+2)(2x-1) \geq 0 \rightarrow \text{NB}$
- b) $(x-\sqrt{5})(x+2)(1-3x) < 0$
- c) $2(x-2)\sqrt{3}(x^2+1)(3-4x) \leq 0$
- d) $x^3 - 4x \geq 0$
- e) $x^2 < 3x + 10$

• V PODIELOVOM TVARE

! NEROVNICE NENAŠOBI'M !!!

a) $\frac{x-3}{3x-2} \geq 0$

$x-3 \geq 0 \rightarrow x \geq 3$

$3x-2 > 0 \rightarrow x > \frac{2}{3}$

$x-3 \leq 0 \rightarrow x \leq 3$

$3x-2 < 0 \rightarrow x < \frac{2}{3}$

$x=4 \rightarrow \frac{1}{10} \geq 0 \checkmark$

$x=10 \rightarrow \frac{7}{28} \geq 0 \checkmark$

$x=0 \notin (\frac{2}{3}, \infty) \rightarrow \frac{-3}{-2} \geq 0 \checkmark$

stručne

ALBO

$\frac{x-3}{3x-2} \geq 0 \Leftrightarrow (x-3 \geq 0 \wedge 3x-2 > 0) \vee (x-3 \leq 0 \wedge 3x-2 < 0)$

$x \geq 3 \vee x < \frac{2}{3}$

$x \in (-\infty; \frac{2}{3}) \cup [3; \infty)$

b) $\frac{x-3}{(2-x)(2x-1)} \leq 0$

NB

$x-3=0 \rightarrow x=3$

$2-x \neq 0 \rightarrow x \neq 2$

$2x-1 \neq 0 \rightarrow x \neq \frac{1}{2}$

	$(-\infty; \frac{1}{2})$	$(\frac{1}{2}; 2)$	$(2; 3)$	$(3; \infty)$
$x-3$	-	-	-	+
$2-x$	+	+	-	-
$2x-1$	-	+	+	+
$\frac{x-3}{(2-x)(2x-1)}$	+	-	+	-

$x \in (\frac{1}{2}; 2) \cup (3; \infty)$

$$c) \frac{(1-x)(3-x)}{(x^2-9)(x^2+3)} < 0$$

↓

$$d) \frac{9}{x+2} \geq 3 \quad / -3$$

$$\frac{9}{x+2} - 3 \geq 0 \quad \checkmark$$

$$\frac{9-3x-6}{x+2} \geq 0$$

$$\frac{3-3x}{x+2} \geq 0 \quad \Leftrightarrow (3-3x \geq 0 \wedge x+2 > 0) \vee (3-3x \leq 0 \wedge x+2 < 0)$$

$1 \geq x \quad x > -2$
 $x \geq 1 \quad x < -2$

$x \in (-2, 1]$

$$\frac{2}{x-4} < 0 \quad \Leftrightarrow x-4 < 0$$

$x < 4 \quad x \in (-\infty, 4)$

$$\frac{x-5}{x^2+3} \geq 0 \quad \Leftrightarrow x-5 \geq 0$$

$x \geq 5 \quad x \in [5, \infty)$

DU

$$e) x \geq \frac{6}{5-x}$$

$$f) \frac{3}{x-2} + \frac{2}{x+1} \geq 0$$