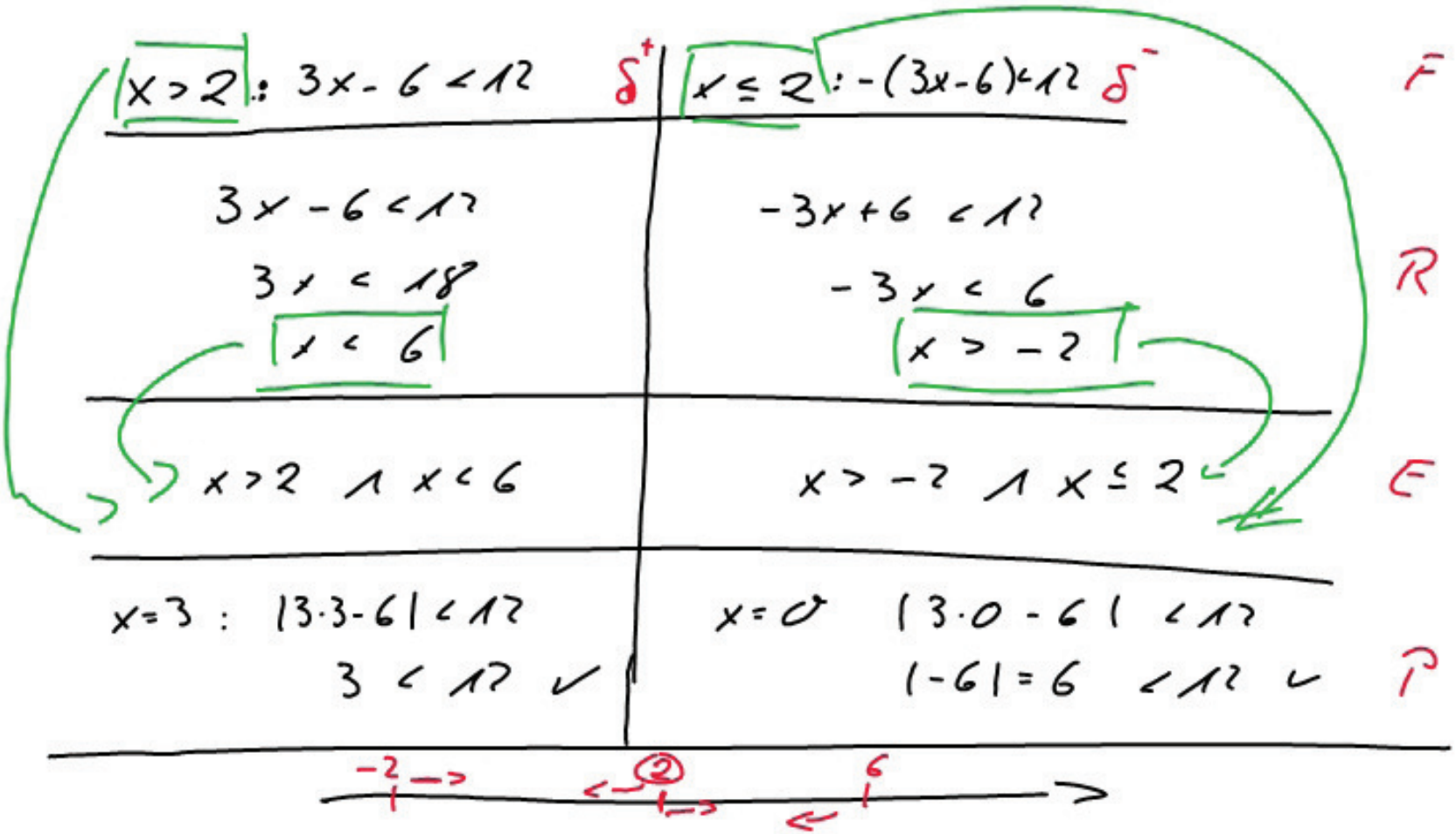
S. 83 / 1) $|3x-6|<12$



$\mathbb{L} = \{x \in \mathbb{R} \mid x > -2 \wedge x < 6\}$

$-2 < x < 6$ $]-2;6[$

S. 83 / 2.

$$\frac{2x-5}{4-x} < -3 \qquad | \cdot (4-x)$$

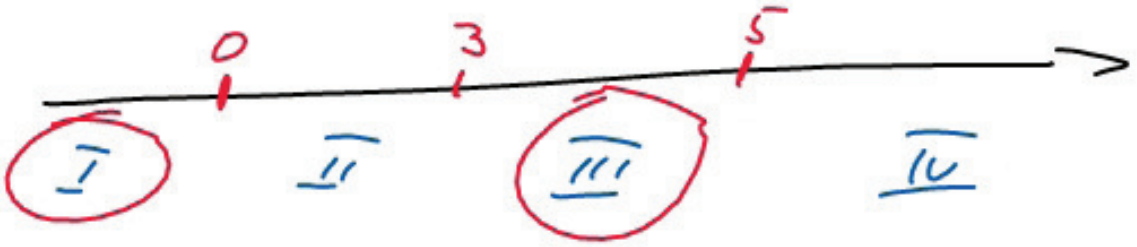
$x > 4$	δ^-	$x < 4$	δ^+	F
$2x-5 > -3 \cdot (4-x)$		$2x-5 < -3(4-x)$		
$2x-5 > -12+3x$		$2x-5 < -12+3x$		R
$-x > -7$		$-x < -7$		
$x < 7$		$x > 7$		
$x > 4 \wedge x < 7$		$x < 4 \vee x > 7$		E
$x = 5$: $\frac{10-5}{4-5} = -5 < -3$ ✓		$x = 3$ $\frac{6-5}{4-3} = 1 < -3$ ✗		P

$$\mathbb{L} = \{ x \in \mathbb{R} \mid x > 4 \wedge x < 7 \}$$ L

S. 83 / 3 $\quad x^3 + 2x^2 + 7x < 10x^2 - 8x$

Nullform: $\quad x^3 - 8x^2 + 15x < 0$

$$x\,(x^2 - 8x + 15) = x\,(x-5)(x-3) < 0$$



I. $\quad x = (-1) \Rightarrow (-1)\cdot(-1-5)\cdot(-1-3) < 0$ ✓

II. $\quad x = 1 \Rightarrow 1\cdot(1-5)\cdot(1-3) > 0$ ✗

III. $\quad x = 4 \Rightarrow 4\cdot(4-5)\cdot(4-3) < 0$ ✓

IV. $\quad x = 6 \Rightarrow 6\cdot(6-5)\cdot(6-3) > 0$ ✗

$$\mathbb{L} = \{x \in \mathbb{R} \mid x < 0 \vee (x > 3 \wedge x < 5)\}$$

S90 Nr. 1

$$\lim_{x \to 2} \frac{21x - 42}{\sqrt{0{,}5x} - \sqrt{3-x}} = \left[\frac{0}{0}\right]$$

$$\lim_{x \to 2} \frac{21x - 42}{\sqrt{0{,}5x} - \sqrt{3-x}} \cdot \frac{\sqrt{0{,}5x} + \sqrt{3-x}}{\sqrt{0{,}5x} + \sqrt{3-x}}$$

$a - b$ $\quad a + b \rightarrow a^2 - b^2$

$$\lim_{x \to 2} \frac{(21x - 42) \cdot (\sqrt{0{,}5x} + \sqrt{3-x})}{0{,}5x - (3-x)} = \left[\frac{0}{0}\right] \quad (x-2)$$

$$0{,}5x - 3 + x = 1{,}5x - 3$$

$$\lim_{x \to 2} \frac{21 \cdot (x-2) \cdot (\sqrt{0{,}5x} + \sqrt{3-x})}{1{,}5\,(x-2)} = \left[\frac{21 \cdot 2}{1{,}5}\right]$$

$\rightarrow$ 28