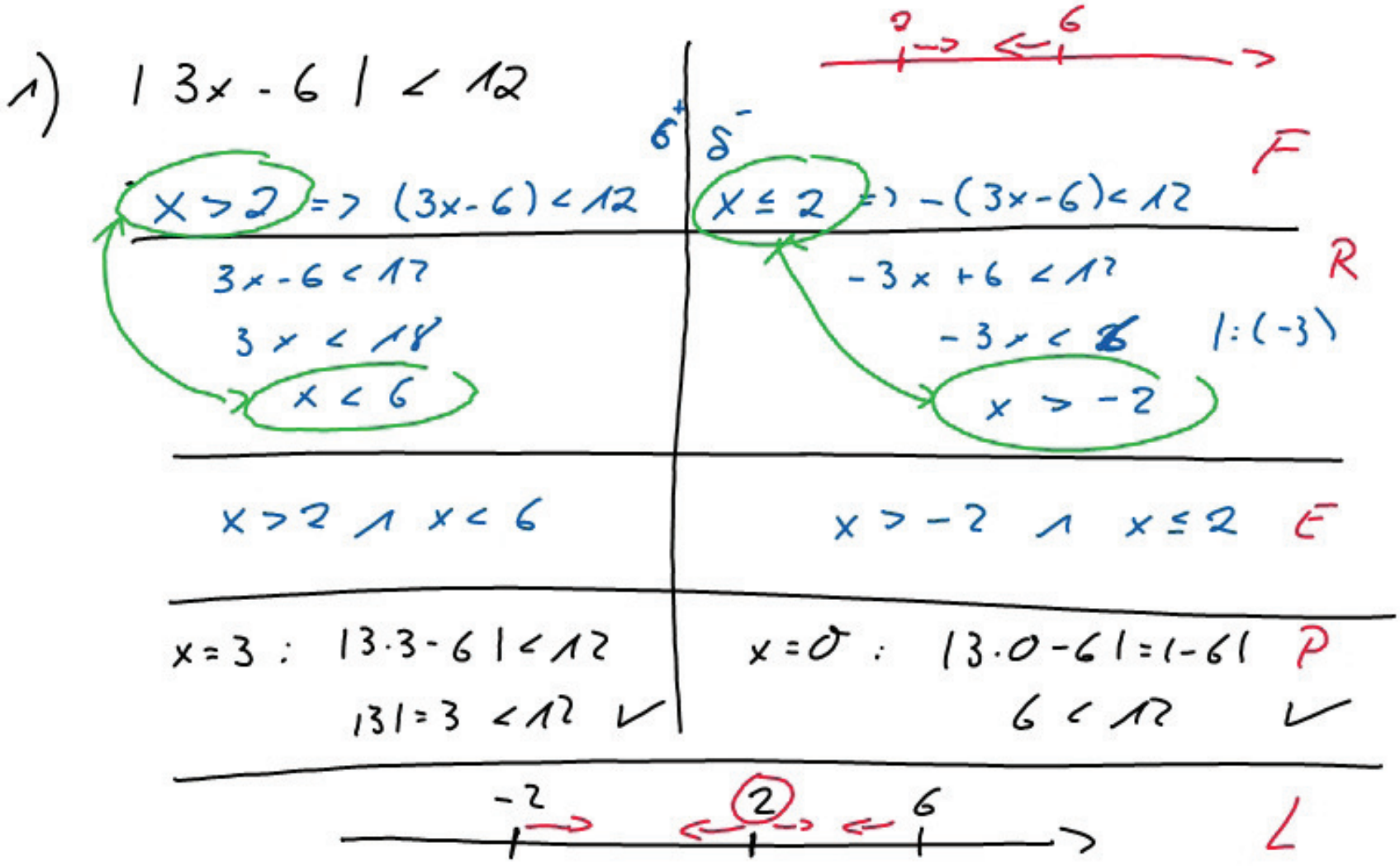
1) $|3x-6| < 12$



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

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

$x > 4$ δ^-	$x < 4$ δ^+	F
$2x-5 > -3(4-x)$	$2x-5 < -3(4-x)$	
$2x-5 > -12+3x$	$2x-5 < -12+3x$	R
$-x > -7$	$-x < -7$	
$x < 7$	$x > 7$	
$x > 4 \wedge x < 7$	$x < 4 \vee x > 7$	L
$x = 5: \quad \frac{5}{-1} = -5 < -3$ ✓	$x = 0 \quad -\frac{5}{4} < -3$	P
	$-5 < -12$ ✗	

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

3) $x^3 + 2x^2 + 7x < 2x(5x-4) = 10x^2 - 8x$

$x^3 - 8x^2 + 15x < 0$

$x(x^2 - 8x + 15) = x(x-5)(x-3)$

I : $x = -1 \Rightarrow -1(-1-5)(-1-3) = ---- < 0$ ✓

II : $x = 2 \Rightarrow 2(2-5)(2-3) = +-- > 0$

III : $x = 4 \Rightarrow 4(4-5)(4-3) = +-+ < 0$ ✓

IV : $x = 6 \Rightarrow 6(6-5)(6-3) = +++ > 0$

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

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

$(a - b) \cdot (a + b) = a^2 - b^2$

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

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

$\lim_{x \to 2} \frac{21(x-2) \cdot (\sqrt{0{,}5x} + \sqrt{3-x})}{0{,}5x - (3-x)}$ ——> $1{,}5x - 3 = 1{,}5(x-2)$

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

$= \underline{\underline{28}}$