① $|x| = x$ als $x \in \mathbb{R}^+$

$|x| = -x$ " $x \in \mathbb{R}^-$

② $|2x+10| = |3-x|$

$2x+10 = 3-x \quad \vee \quad 2x+10 = -(3-x)$

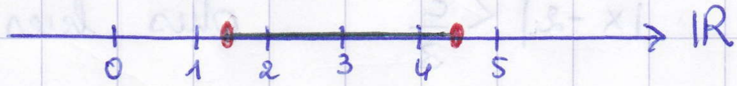
$3x = -7 \qquad 2x+10 = -3+x$

$x = -\frac{7}{3} \qquad x = -13 \qquad V = \left\{-\frac{7}{3}, -13\right\}$

③ $|-2x+15| < 15 \iff -15 < -2x+5 < 15$

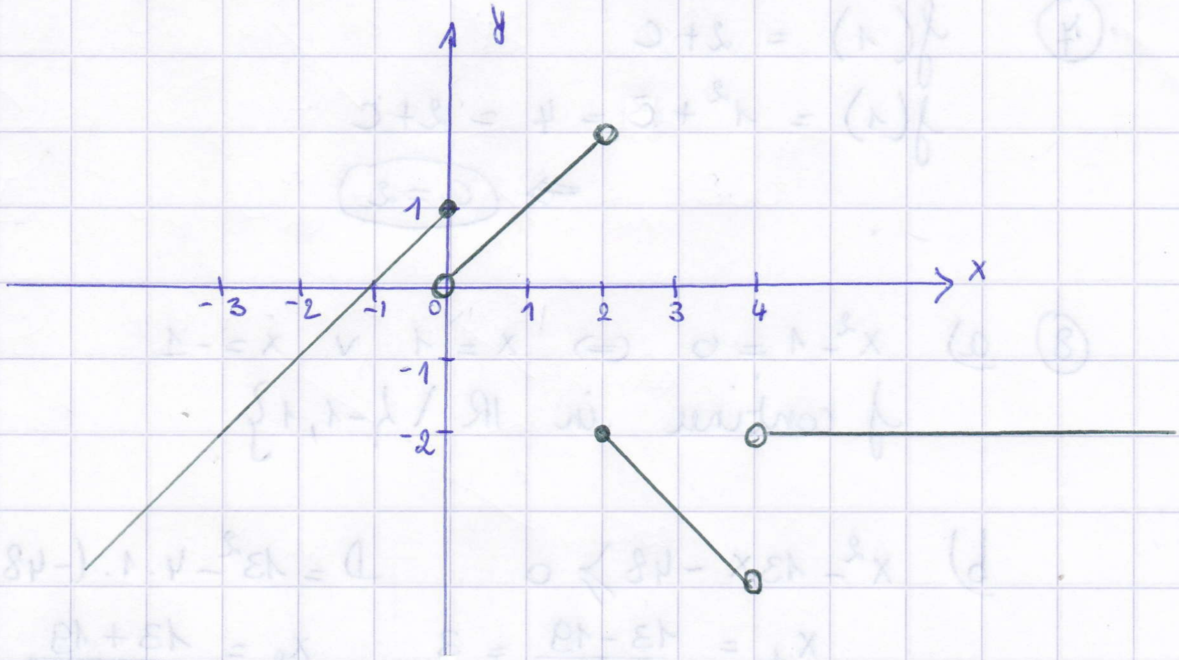
$\iff -20 < -2x < 10$

$\iff 10 > x > -5 \qquad x \in \,]-5, 10[$

④ 

$]1{,}5 \,;\, 4{,}5[$

⑤ a)



b) $\text{dom} f = \mathbb{R} \setminus \{4\}$

c) f continu in -3, dus ook links- en rechtsct in -3

f discontinu in 0, wel linkscontinu in 0

f continu in 1, dus ook links- en rechtsct in 1

f discontinu in 2, wel rechtscontinu in 2

f is niet gedefiniëerd in 4

d) f continu in $]-\infty, 0]$ want

1) f continu in $a \in]-\infty, 0[$

2) f is linkscontinu in 0

⑥ TB $\forall \varepsilon > 0, \exists \delta > 0, \forall x \in \text{dom} f : |x-2| < \delta \Rightarrow |f(x) - f(2)| < \varepsilon$

Nu is $|f(x) - f(2)| < \varepsilon$

$\Leftrightarrow |3x + 1 - 7| < \varepsilon$

$\Leftrightarrow |3x - 6| < \varepsilon$

$\Leftrightarrow |3(x-2)| < \varepsilon$

$\Leftrightarrow \underbrace{|3|}_{3} |x-2| < \varepsilon$

$\Leftrightarrow |x-2| < \frac{\varepsilon}{3}$ dus kies $\delta \leq \frac{\varepsilon}{3}$

⑦ $f(1) = 2 + c$

$f(1) = 1^2 + 3 = 4 = 2 + c$

$\Rightarrow c = 2$

⑧ a) $x^2 - 1 = 0 \Leftrightarrow x = 1 \vee x = -1$

f continu in $\mathbb{R} \setminus \{-1, 1\}$

b) $x^2 - 13x - 48 \geqslant 0$ $D = 13^2 - 4 \cdot 1 \cdot (-48) = 361 = 19^2$

$x_1 = \frac{13 - 19}{2} = 3$ $x_2 = \frac{13 + 19}{2} = 16$

x		-3		16	
$x^2 - 13x - 48$	$+$	0	$-$	0	$+$

f continu in $]-\infty, -3] \cup [16, +\infty[$