

I 1)	$x^2 - 4x - 5 = 0$	Ergänzung	$\mathcal{L} = \{-1, 5\}$
2)	$x^2 - 3x + 10 = 0$	\leftarrow P/q	$\mathcal{L} = \emptyset$
3)	$x^2 + 12x + 32 = 0$	Vieta	$\mathcal{L} = \{-4, -8\}$

II. 4) $f(x) = -2(x^2 - 6x + 9) = -2(x-3)^2 + 0$

\Rightarrow nach unten offen, da $-2 < 0$

\Rightarrow gestreckt, da $|-2| > 1$

\Rightarrow Scheitelpunkt $(3|0) \hat{=} \text{Hochpunkt}$

$\Rightarrow S_x(3|0); S_y(0|-18)$

5) $g(x) = \frac{1}{2}(x^2 + 20x + 64)$
 $= \frac{1}{2}[(x+10)^2 - 10^2 + 64]$
 $= \frac{1}{2}(x+10)^2 - 18 \quad \Rightarrow S(-10|-18)$

7) $\mathcal{L} = \{ \pm 5; \}$; 8) $\mathcal{L} = \{ \pm 1; \pm 2 \}$

$$5) \quad \frac{1}{2}(x+10)^2 - 18 = f(x) = 0 \quad | +18$$

$$\frac{1}{2}(x+10)^2 = 18 \quad | \cdot 2$$

$$(x+10)^2 = 36 \quad | \sqrt{\quad}$$

$$x+10 = \pm \sqrt{36} = \pm 6 \quad | -10$$

$$x_1 = -4 \quad \vee \quad x_2 = -16$$

$$S_{x_1} = (-4 | 0) \quad ; \quad S_{x_2} = (-16 | 0)$$

$$x_S = -10$$

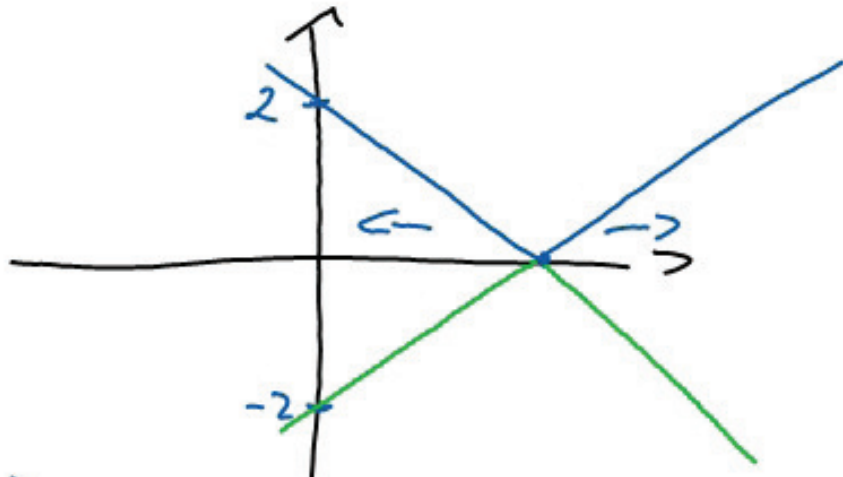
$$S_y = (0 | 32)$$

Achsen symmetrie zur y-Parallelen Geraden $x = -10$

$$1) \quad f(x) = \left| \frac{2}{3}x - 2 \right| = \begin{cases} \frac{2}{3}x - 2 & ; x \geq 3 \\ -\frac{2}{3}x + 2 & ; x < 3 \end{cases}$$

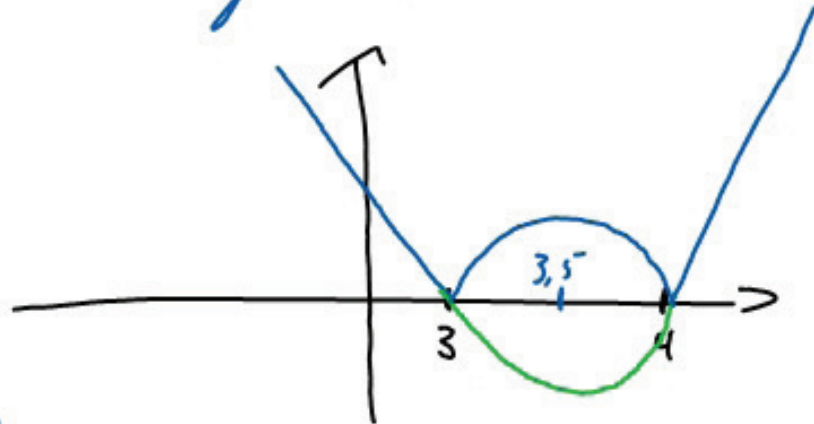
$$y = \frac{a}{b} \cdot x + c$$

c = Achsenabschnitt
 $\frac{a}{b}$ = Steigung $b \rightarrow$
 $a \updownarrow$



$$2) \quad f(x) = |x^2 - 7x + 12|$$

$$f(x) = |(x-4)(x-3)|$$



3)



$$4) |3-x| < 2$$

$$\boxed{x \geq 3} \Rightarrow -(3-x) < 2$$

$$\boxed{x < 3} \Rightarrow 3-x < 2 \quad F$$

$$-3+x < 2 \Leftrightarrow \boxed{x < 5}$$

$$+3-x < 2 \Leftrightarrow -x < -1 \quad R$$

$$\boxed{x > 1}$$

$$x \geq 3 \wedge x < 5$$

$$x > 1 \wedge x < 3 \quad E$$



$$|3-2| = 1 < 2 \quad \checkmark$$

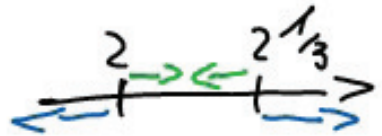
$$|3-4| = |-1| = 1 < 2 \quad \checkmark$$

$$L = \{x \in \mathbb{R} \mid x > 1 \wedge x < 5\}$$

$$5) \{x \in \mathbb{R} \mid x < 1 \vee x > 5\}$$



$$1) \frac{2x-5}{4-2x} > \frac{1}{2} \quad | \cdot (4-2x) \begin{matrix} \nearrow \oplus \\ \searrow \ominus \end{matrix}$$



$x > 2$ \ominus	$x < 2$ \oplus	F
$2x-5 < \frac{1}{2}(4-2x)$	$2x-5 > \frac{1}{2}(4-2x)$	
$2x-5 < 2-x$	$2x-5 > 2-x$	R
$3x < 7$	$3x > 7$	
$x < \frac{7}{3}$	$x > \frac{7}{3}$	

$2 < x < \frac{7}{3}$

$x > 2$ \ominus \oplus $x < \frac{7}{3}$	$x < 2$ \oplus \ominus $x > \frac{7}{3}$	E
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$2 \frac{1}{4} : \frac{4,5-5}{4-4,5} = \frac{-0,5}{-0,5} = 1 > \frac{1}{2}$ ✓	$x=0 : \frac{-5}{4} > \frac{1}{2}$	f P
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$L : \{ x \in \mathbb{R} \mid x > 2 \wedge x < \frac{7}{3} \}$ L