

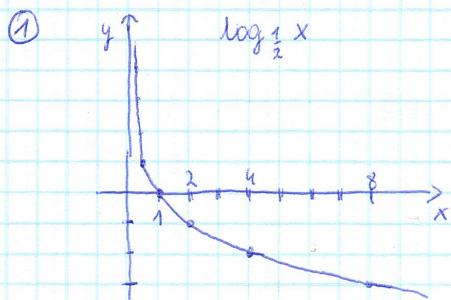
$$y = |\log_{\frac{1}{2}}(x-2)|$$

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What to say in front of the blackboard - a brief tutorial

Exercise: Draw the graph of  $y = |\log_{\frac{1}{2}}(x-2)|$  (each step separately)  
State the domain and the co-domain of each function.

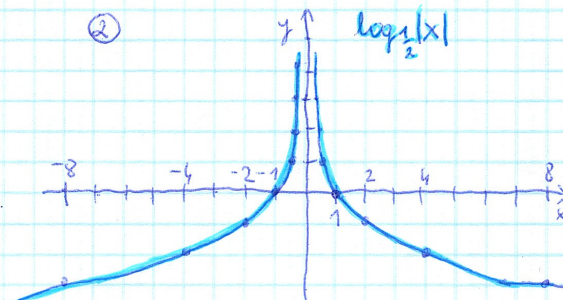
Solution:



I start with a logarithm of  $x$  with base  $\frac{1}{2}$

$$D_{y_1}: (0, +\infty)$$

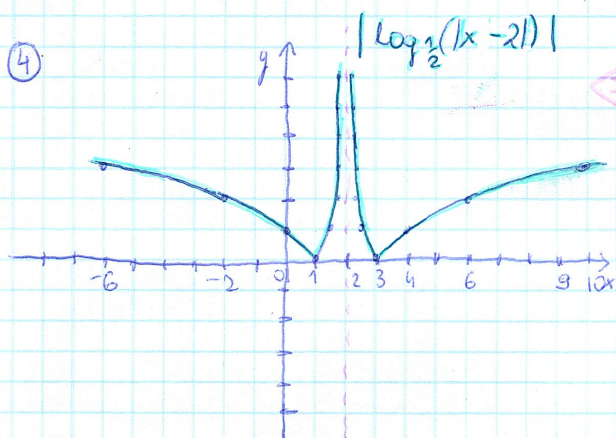
$$O_{y_1}: \mathbb{R}$$



then, I the right-hand side removes left-hand side, is a mirror image.

$$D_{y_2}: \mathbb{R} \setminus \{0\}$$

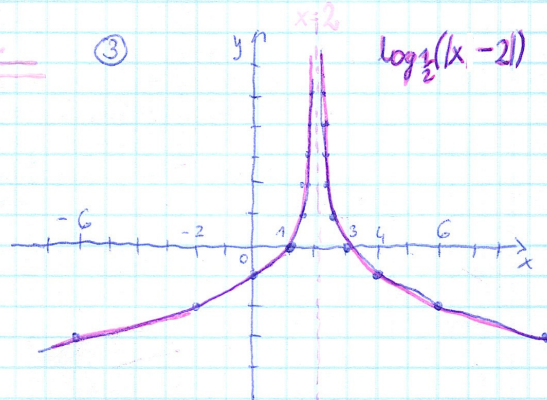
$$O_{y_2}: \mathbb{R}$$



to obtain the absolute value, the negative part of the previous graph goes up

$$D_{y_4}: \mathbb{R} \setminus \{2\}$$

$$O_{y_4}: (-\infty, +\infty)$$



I move my previous graph by 2 to the right

$$D_{y_3}: \mathbb{R} \setminus \{2\}$$

$$O_{y_3}: \mathbb{R}$$