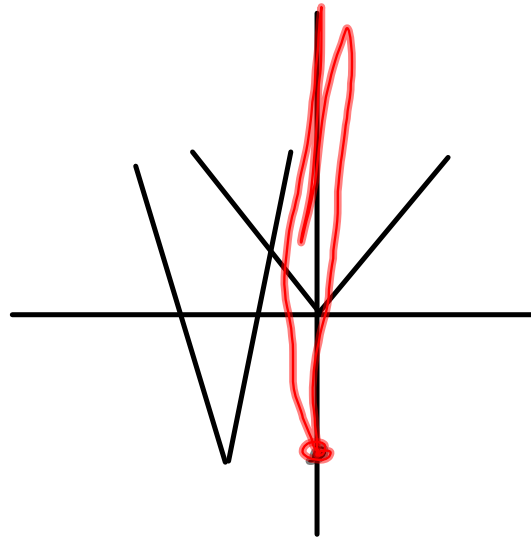


State the domain and range of $y = 4 | x+2| - 3$ and sketch the graph AND list the transformations in CORRECT order.

vertically stretched
translated left 2 units
translated down 3 units

$$D: \{x \in \mathbb{R}\}$$
$$R: \{y \geq -3 \mid y \in \mathbb{R}\}$$



$$y = a f (k(x - d)) + c$$

horizontal stretch - $|a| < 1$

horizontal compression - $|a| > 1$

$$y = 2(x^2) \leftarrow \begin{array}{l} \text{function} \\ \text{is } af(x) \end{array}$$

Which one has a k????

$$y = (2x)^2$$

$$\begin{array}{l} f(x) = x^2 \\ y = f(2(x-1)) + 3 \end{array}$$

$$y = f(\underbrace{2(x-1)}_{\substack{x \\ \div 2}}) + \underbrace{3}_{\substack{y \\ + 3}}$$

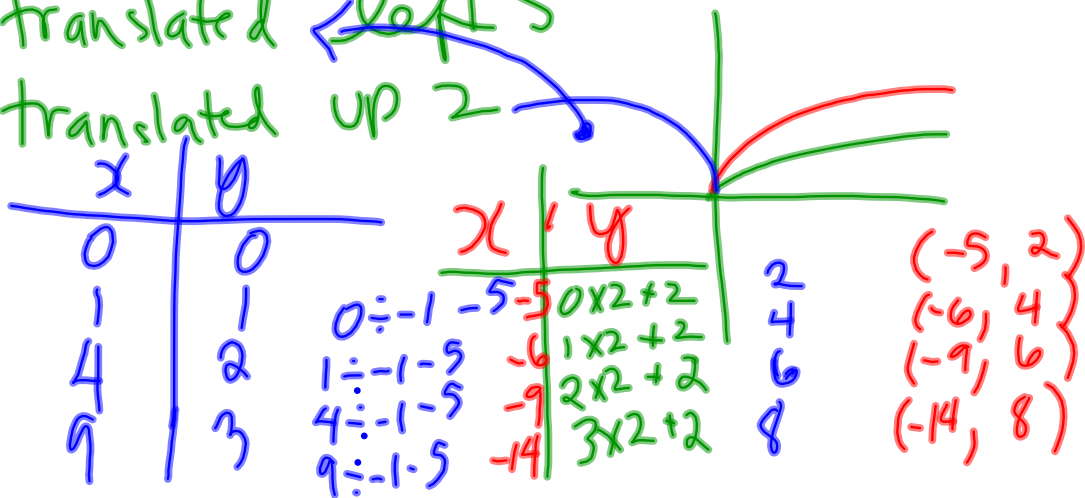
x	y
-2	4
-1	1
0	0
1	1
2	4

	y
$-2 \div 2 + 1$	0
$-1 \div 2 + 1$	0.5
$0 \div 2 + 1$	1
$1 \div 2 + 1$	1.5
$2 \div 2 + 1$	2

1. $f(x) = \sqrt{x}$

$y = 2\sqrt{-1(x+5)} + 2$

1. V.S.
2. reflected in the y-axis
3. translated ← left 5
4. translated up 2



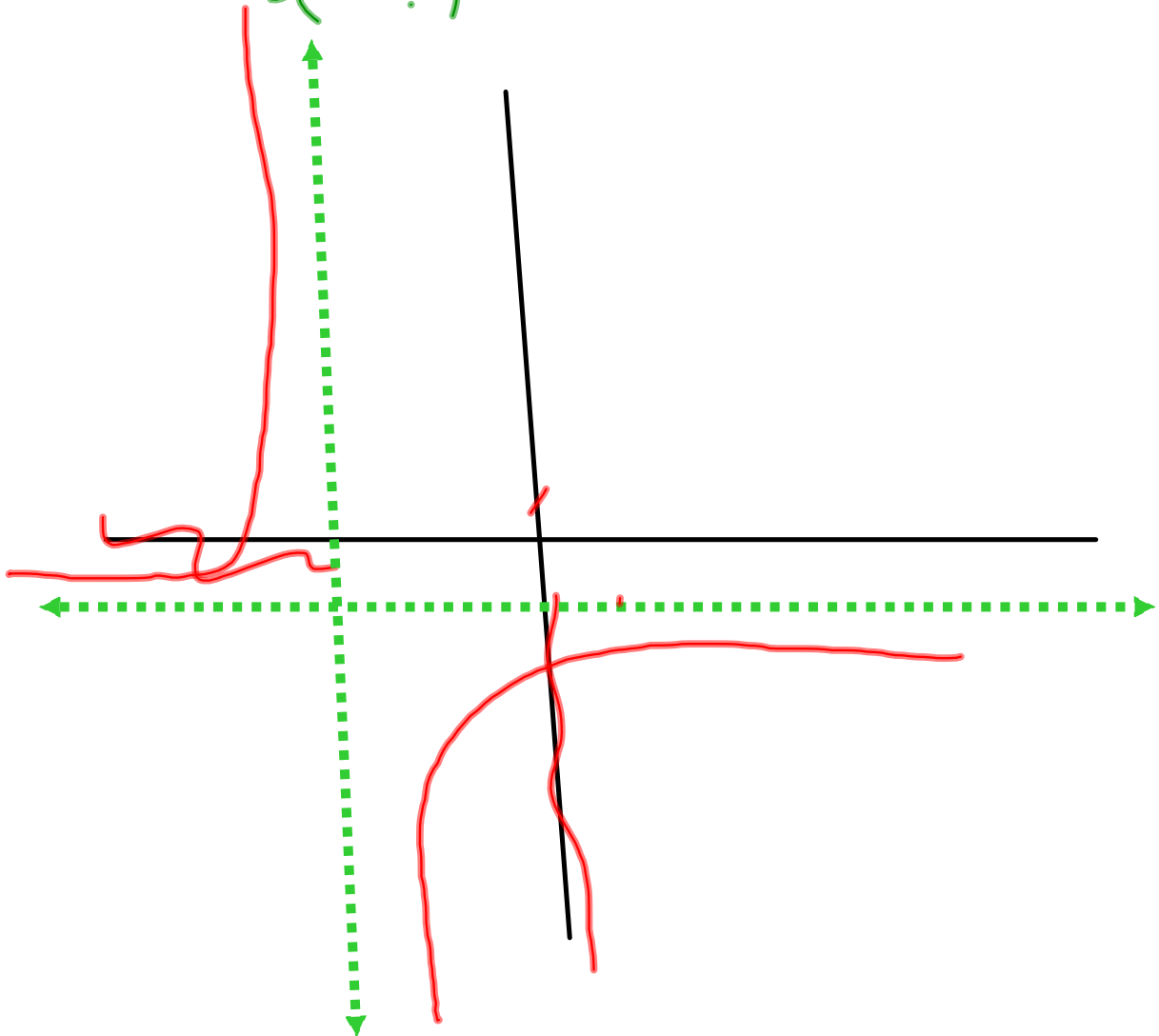
$$y = \frac{-4}{\underline{\underline{2x+6}}} - 1$$

k

$$y = \frac{-4}{2(x+3)} - 1$$

egrad ↙

$$f(x) = \frac{1}{x} \quad y = -4 f(2(x+3)) - 1$$



x	y
$-10 \div 2 - 3$	$-0.1x - 4 - 1$
$-1 \div 2 - 3$	$-1x - 4 - 1$
$-0.1 \div 2 - 3$	$-10x - 4 - 1$
$0.1 \div 2 - 3$	$10x - 4 - 1$
$1 \div 2 - 3$	$1x - 4 - 1$
$10 \div 2 - 3$	$0.1x - 4 - 1$

-8	-0.6
-3.5	3
-3.05	39
-2.95	-41
-2.5	-5
2	-1.4