

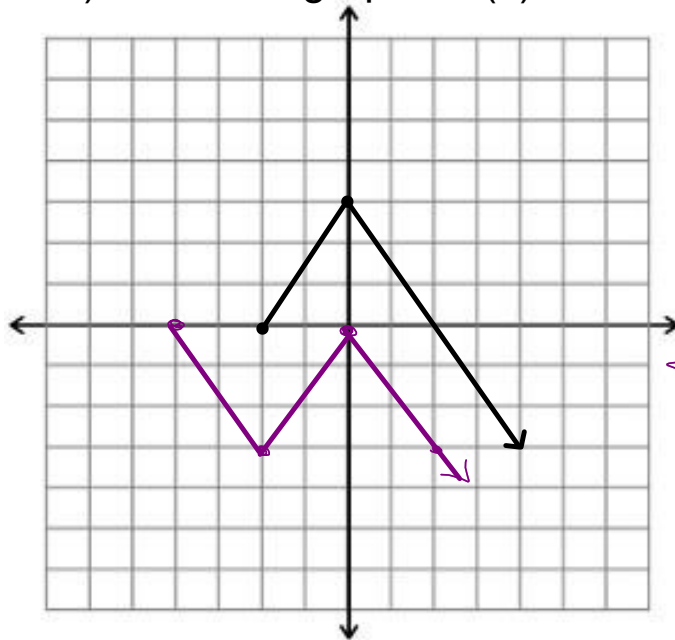
Absolute Values

Graphs of absolute value functions are made by reflecting any portion of the original graph below the x-axis to above the x-axis.

Steps to Graphing:

- 1) Apply transformations to the x-values as normal
- 2) Apply absolute value to y-values (ie. make all y-values positive)
- 3) Lastly, apply transformations outside | | to y-values

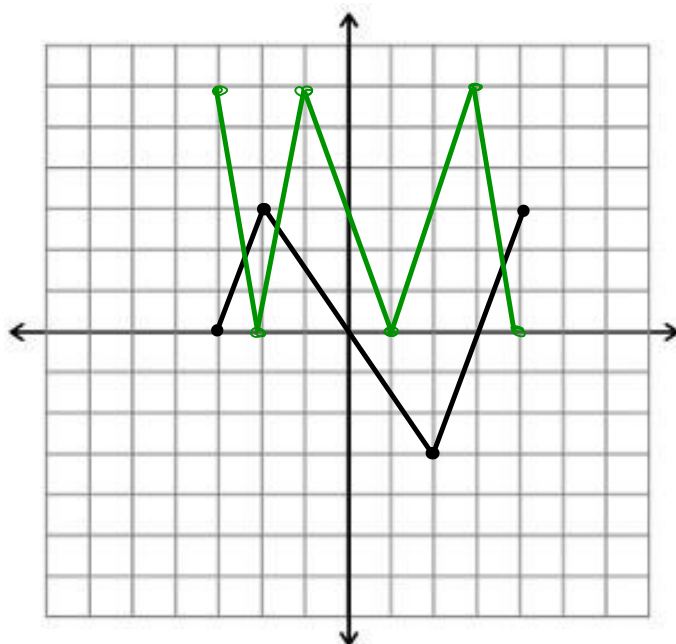
Ex 1) Given the graph of $f(x)$, sketch the graph of $y = -\frac{1}{2}|f(x+2)|$



$$(x, y) \rightarrow (x-2, -|y|)$$

$(-2, 0)$	$(-4, 0)$
$(0, 3)$	$(-2, -3)$
$(2, 0)$	$(0, 0)$
$\star (4, -3)$	$(2, -3)$

Ex 2) Given the graph of $f(x)$, sketch the graph of $y = 2|f(-x+1)|$

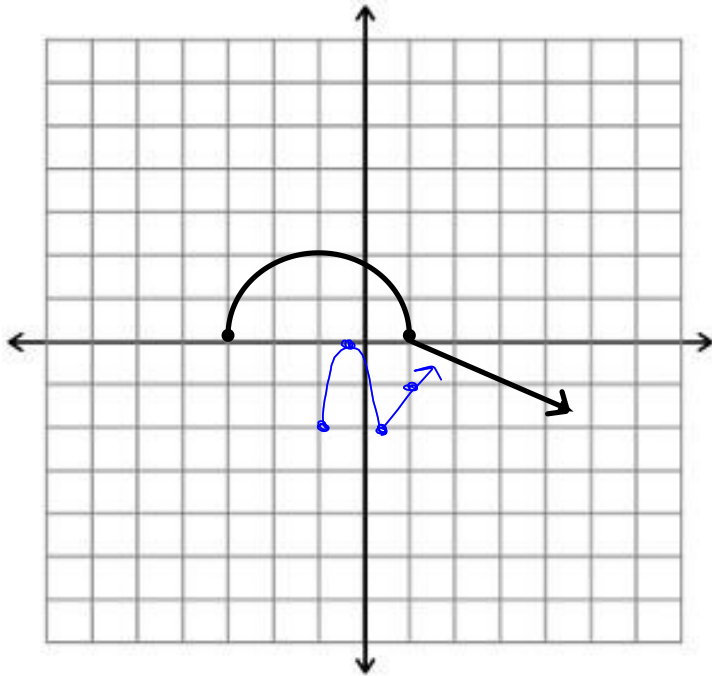


$$= 2|f_b(x_c-1)|$$

$$(x, y) \rightarrow (-x+1, 2|y|)$$

$(-3, 0)$	$(4, 0)$
$(-2, 3)$	$(3, 6)$
$(0, 0)$	$(1, 0)$
$(2, -3)$	$(-1, 6)$
$(3, 0)$	$(-2, 0)$
$(4, 3)$	$(-3, 6)$

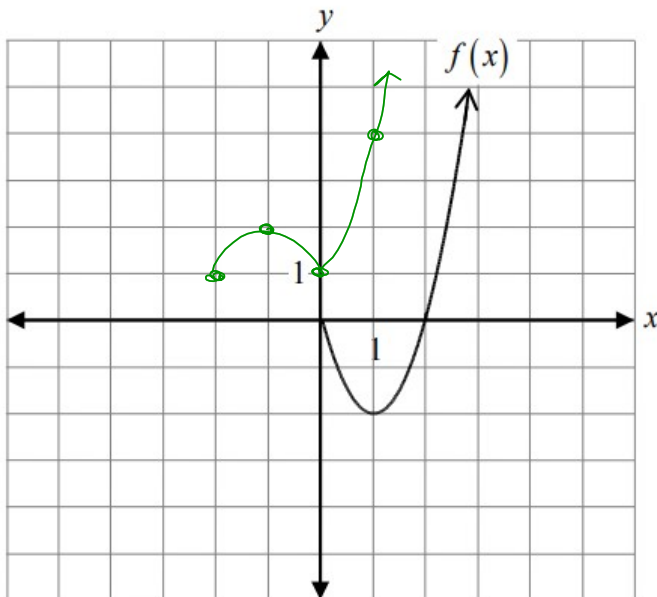
Ex 3) Given the graph of $f(x)$, sketch the graph of $y = \left| \frac{f(3x)}{b} \right| - 2$



$$(x, y) \rightarrow \left(\frac{x}{3}, |y| - 2 \right)$$

$(-3, 0)$	$(-1, -2)$
$(-1, 2)$	$(-\frac{1}{3}, 0)$
$(1, 0)$	$(\frac{1}{3}, -2)$
$(3, -1)$	$(1, -1)$

Ex 4) Given the graph of $f(x)$, sketch the graph of $y = \left| \frac{1}{2} f(x+2) \right| + 1$



$$(x, y) \rightarrow \left(x - 2, \frac{1}{2} |y| + 1 \right)$$

$(0, 0)$	$(-2, 1)$
$(1, -2)$	$(-1, 2)$
$(2, 0)$	$(0, 1)$
$(3, 6)$	$(1, 4)$

Absolute Value
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