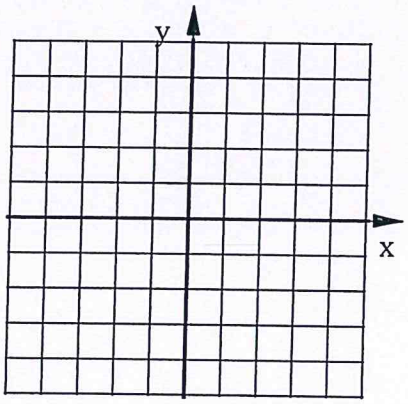
Bellwork Alg 2 Friday, September 14, 2018

1. Write the equation of this transformation of y = |x|:
Translated 5 units left and 3 units down. 6 times taller than the parent function. Opens Up.
$y =$

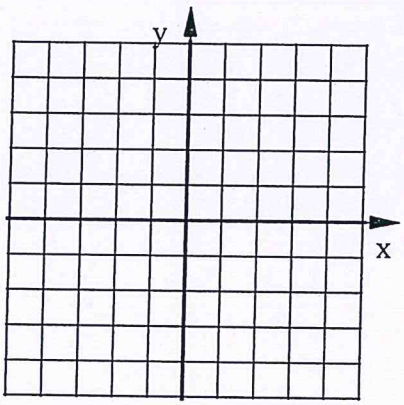
2. Describe ALL the transformations of $y = |x|$ this equation represents.
$y = -7|x + 3| - 12$

3. Graph each using at least five points.

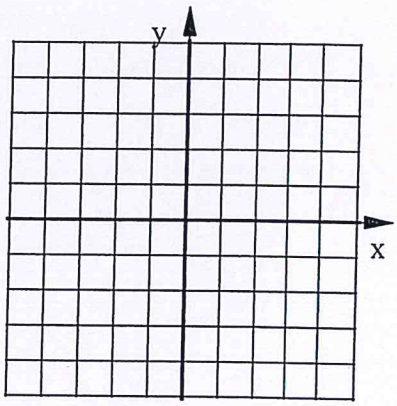
a) $y = -2|x + 3| + 1$



b) $y = 3|x - 2| - 4$

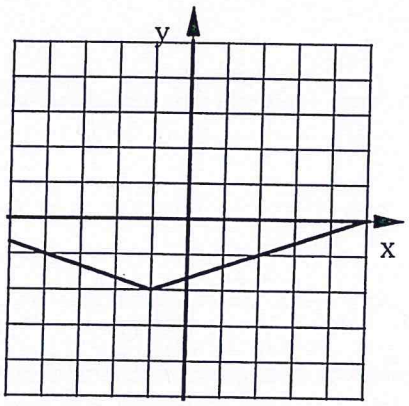


c) $y = -\frac{3}{2}|x - 1| + 5$

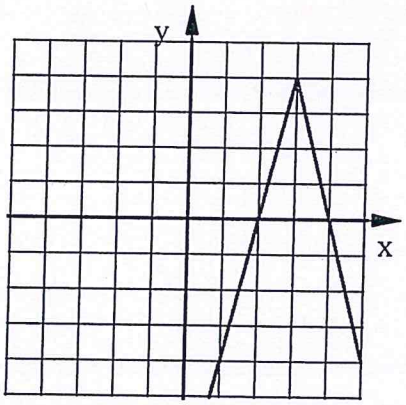


4. Write the equation of each function.

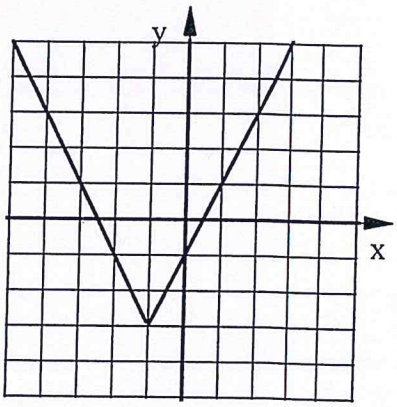
a) EQ:



b) EQ:



c) EQ:



5. Use these functions: $f(x) = 2x^2 + 5x - 12$ $g(x) = x + 4$ $h(x) = \frac{x + 6}{3x - 1}$

a) Find $\left(\frac{g}{f}\right)(x)$. Simplify your answer and state the Domain.

b) Find $(h \circ g)(x)$. Simplify your answer.

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ANSWERS

1. Write the equation of this transformation of y = |x|:
Translated 5 units left and 3 units down. 6 times taller than the parent function. Opens Up.

$y =$ $6|x+5|-3$

2. Describe ALL the transformations of $y = |x|$ this equation represents.

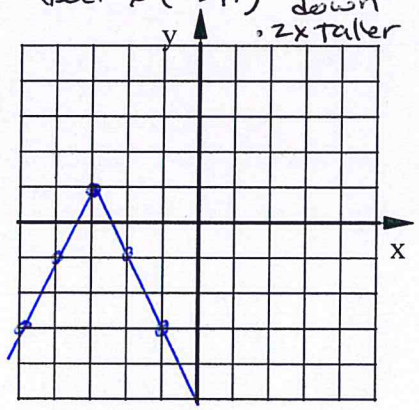
$y = -7|x+3|-12$

- opens down
- 7 times taller (vertical stretch factor of 7)
- moved 3 left
- moved 12 down

3. Graph each using at least five points.

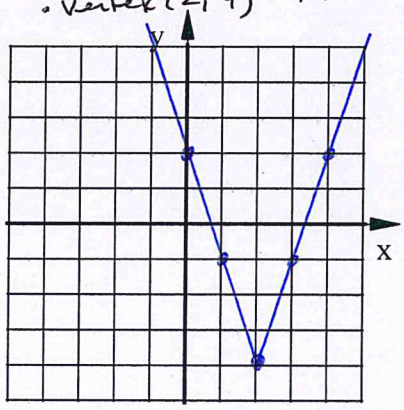
a) $y = -2|x+3|+1$

Vertex (-3, 1) · opens down · 2x taller



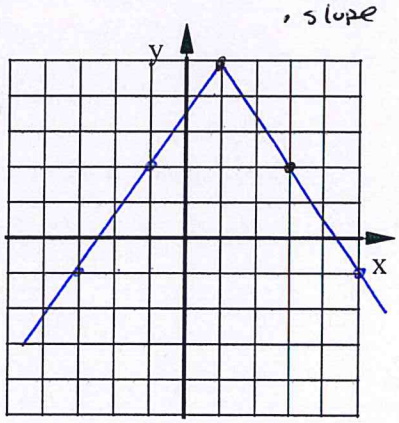
b) $y = 3|x-2|-4$

· opens up · Vertex (2, -4) · 3x taller



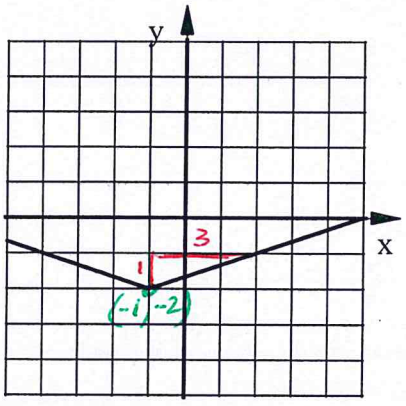
c) $y = -\frac{3}{2}|x-1|+5$

· vertex (1, 5) · opens down · slope of sides is $\pm 3/2$

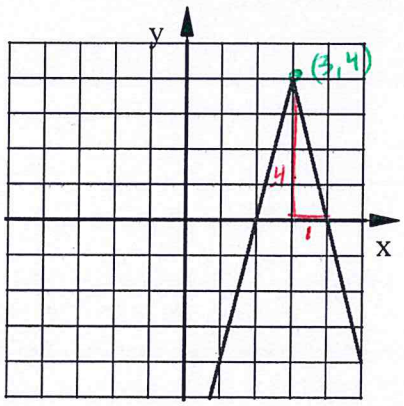


4. Write the equation of each function.

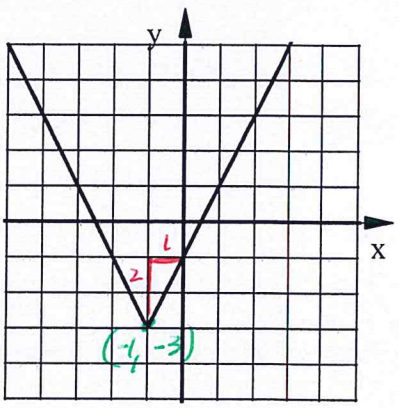
a) EQ: $y = \frac{1}{3}|x+1|-2$



b) EQ: $y = -4|x-3|+4$



c) EQ: $y = 2|x+1|-3$



5. Use these functions: $f(x) = 2x^2 + 5x - 12$ $g(x) = x + 4$ $h(x) = \frac{x+6}{3x-1}$

a) Find $\left(\frac{g}{f}\right)(x)$. Simplify your answer and state the Domain.

$\left(\frac{g}{f}\right)(x) = \frac{x+4}{2x^2+5x-12}$

-24, +8, -3, +5

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

	x	+4
2x	$2x^2$	+8x
-3	-3x	-12

$\left(\frac{g}{f}\right)(x) = \frac{1}{2x-3}$

Domain: $x \neq -4, 3/2$

b) Find $(h \circ g)(x)$. Simplify your answer.

$h(g(x)) = \frac{(x+4)+6}{3(x+4)-1} = \frac{x+4+6}{3x+12-1}$

$= \frac{x+10}{3x+11}$