Algebra 2 Transformations Review

HW #6: SHOW ALL WORK on the worksheet.

Let $f(x) = -2x^2 - 10, p(x) = |x - 2| + 5,$ and $m(x) = x^3 + 6x + 1$. Evaluate the following:

1. $p(-4)$

$= |-4-2|+5$
$= |-6|+5$
$= 11$

2. $f(-3)$

$= -2(-3)^2 - 10$
$= -18 - 10$
$= -28$

3. $m(2)$

$= 2^3 + 6 \cdot 2 + 1$
$= 8 + 12 + 1$
$= 21$

4. $p(f(4))$

$f(4) = -2(4)^2 - 10 = -42$
$p(f(4)) = p(-42)$
$= |-42-2|+5$
$= 44+5$
$= 49$

Determine if the relation represents a function. Explain your reasoning.

5. $\{(-3, 5), (2, -6), (0, 5), (2, 4)\}$

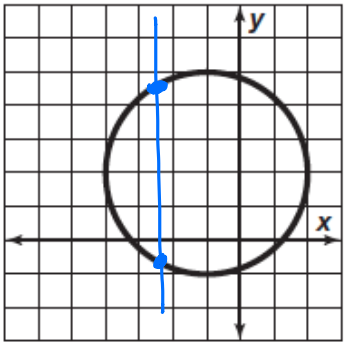
Not a function. Input of 2 has two outputs.

6.

x	$f(x)$
-4	0
5	5
6	2
3	0

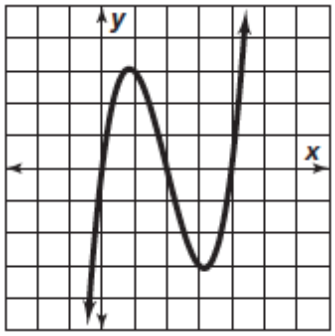
Function. Each x has only one f(x) value.

7.



Not a function. Fails the VLT.

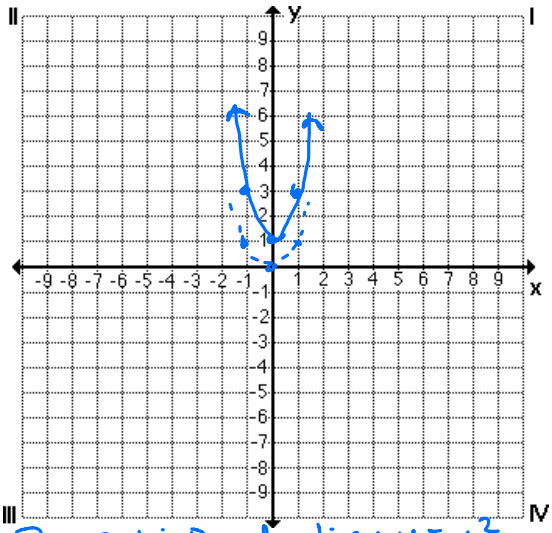
8.



Function. Passes the VLT.

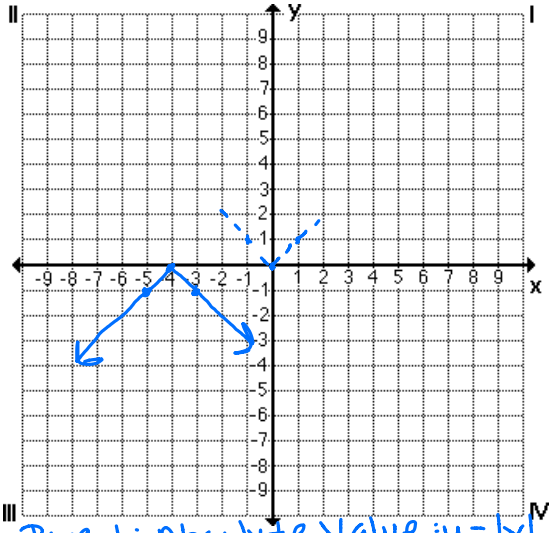
For each function below, state the parent function, describe the transformations then graph the function.

9. $f(x) = 2x^2 + 1$



Parent: Quadratic: $y = x^2$
Transformation: Double the y-values
Shift up 1 unit

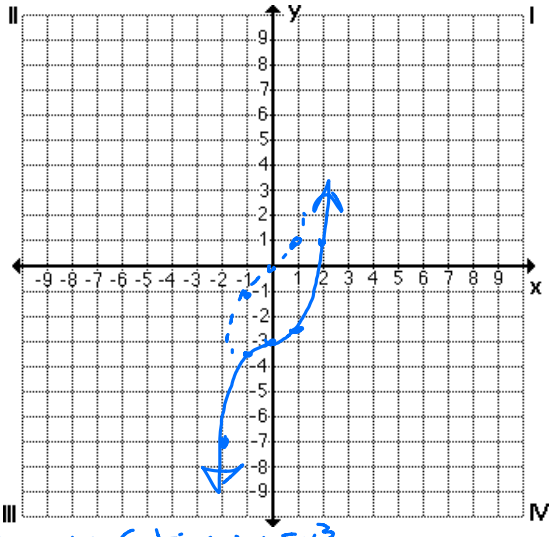
10. $g(x) = -|x + 4|$



Parent: Absolute Value: $y = |x|$
Transformation: Reflect about x-axis
Shift left 4 units

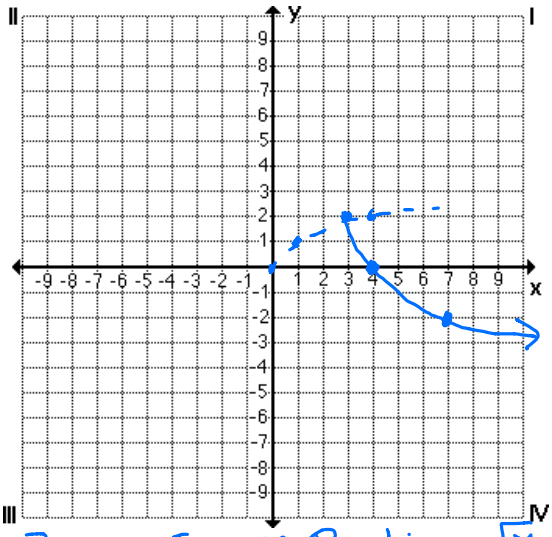
Algebra 2 Transformations Review

11. $h(x) = \frac{1}{2}x^3 - 3$



Parent: Cubic : $y = x^3$
Transformation: $\frac{1}{2}$ times y-value
Shift down 3 units

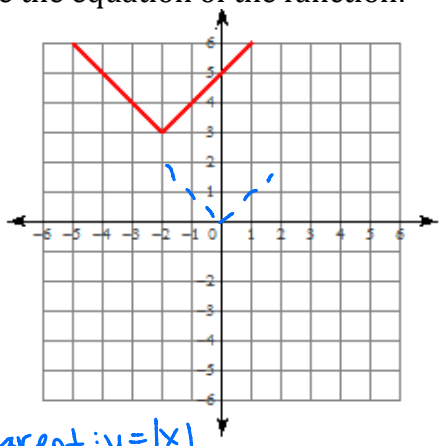
12. $f(x) = -2\sqrt{x-3} + 2$



Parent: Square Root: $y = \sqrt{x}$
Transformation: -2 times y-value
Shift right 3 units
Shift up 2 units

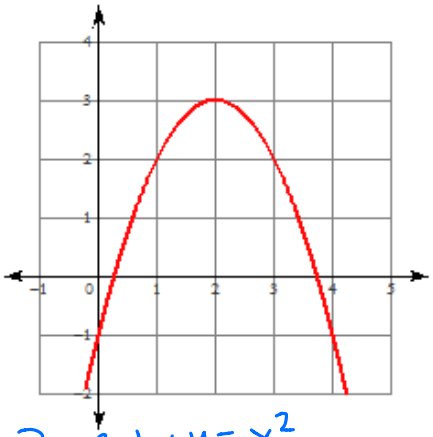
Write the equation of the function:

13.



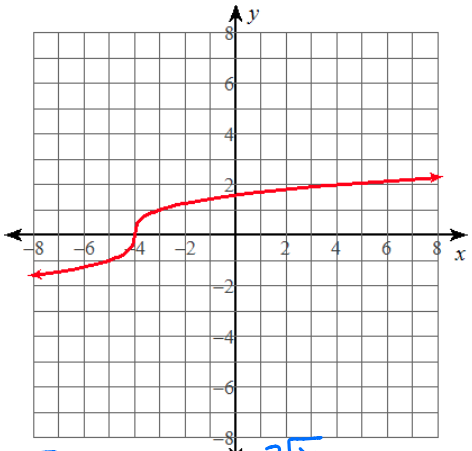
Parent: $y = |x|$
$y = |x+2| + 3$

14.



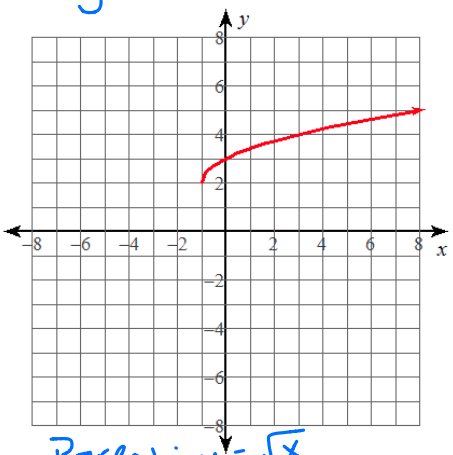
Parent: $y = x^2$
$y = -(x-2)^2 + 3$

15.



Parent: $y = \sqrt[3]{x}$
$y = \sqrt[3]{x+4}$

16.



Parent: $y = \sqrt{x}$
$y = \sqrt{x+1}$ +