Name **Schlansky**

Mr. Schlansky

$f(x)+a$ up a units
$f(x)-a$ down a units
$f(x+a)$ left a units
$f(x-a)$ right a units

Date _____
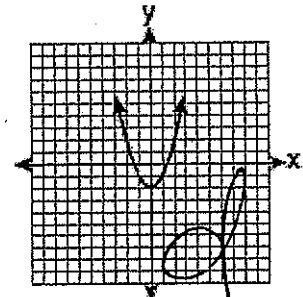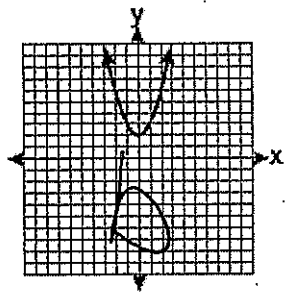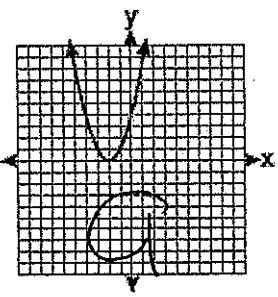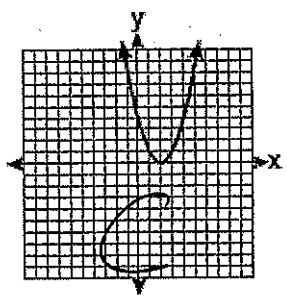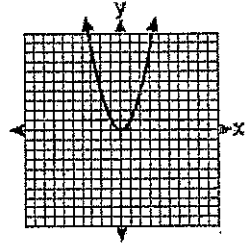
Algebra II

Transforming Functions

1. The graph below represents $f(x)$.

Match the following equations with their graphs:

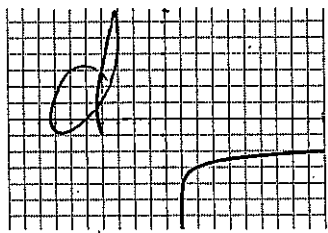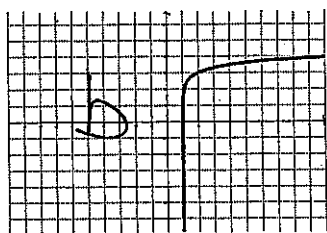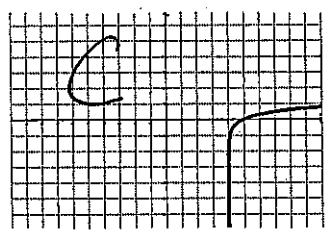a) $f(x+2)$ left 2

b) $f(x)+2$ up 2

c) $f(x-2)$ right 2

d) $f(x)-2$ down 2

c   a   b   d

2. The graph below represents $f(x)$.

Match the following equations with their graphs:
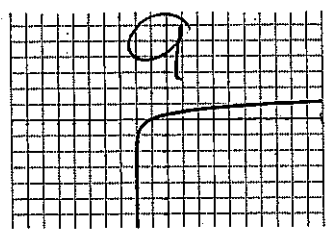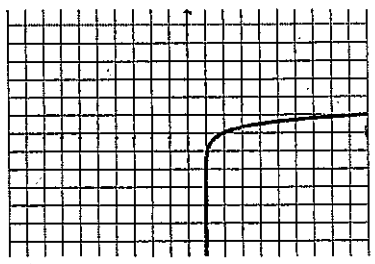
a) $f(x+2)$ left 2

b) $f(x)+2$ up 2

c) $f(x-2)$ right 2

d) $f(x)-2$ down 2

a   c

b   d

3. Which transformation of $y = 2^x$ results in the function $y = 2^x - 2$?

1) Up two units   3) Right two units   *down 2*

2) Down two units   4) Left 2 Units

4. Which transformation of $y = 2^x$ results in the function $y = 2^{x-2}$?   *right 2*

1) Up two units   3) Right two units

2) Down two units   4) Left 2 Units

5. The function $f(x) = \sqrt{x}$. Which function represents a shift of the graph left 3 units?

1) $f(x-3) = \sqrt{x-3}$ 3) $f(x)+3 = \sqrt{x}+3$ *add to just the x*

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

6. Joey's math class is studying the basic quadratic function, $f(x) = x^2$. Each student is supposed to make two new functions by adding or subtracting a constant to the function. Joey chooses the functions $g(x) = x^2 - 5$ and $h(x) = x^2 + 2$. What transformations would map $f(x)$ to $g(x)$ and $f(x)$ to $h(x)$?   *up 2*

1) shift left 5, shift right 2   3) shift up 5, shift down 2

2) shift right 5, shift left 2   4) shift down 5, shift up 2

down 5

7. If $g(x) = f(x-4)+2$, how is the graph of $f(x)$ translated to form the graph of $g(x)$?

right 4   up 2

8. If $h(x) = f(x+1)-3$, how is the graph of $f(x)$ translated to form the graph of $g(x)$?

left 1   down 3

9. How is the parent function transformed to create $f(x) = |x+3| - 2$?
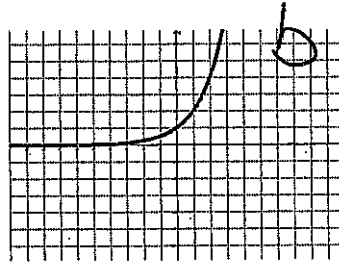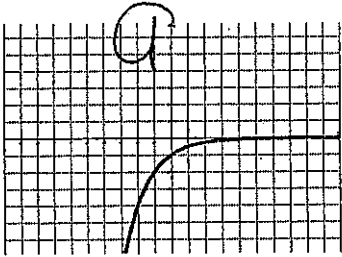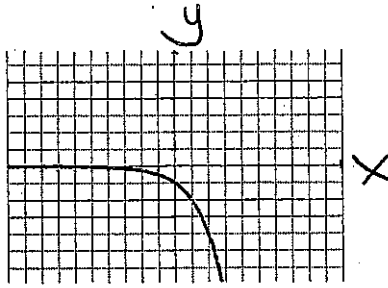
left 3   down 2

10. How is the parent function transformed to create $f(x) = (x-4)^2 + 3$?

right 4   up 3

11. The graph to the right represents $f(x)$.
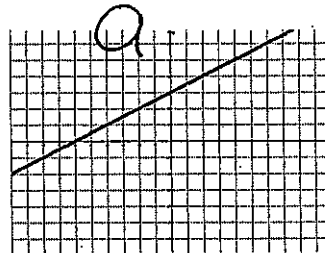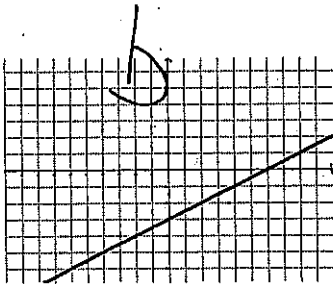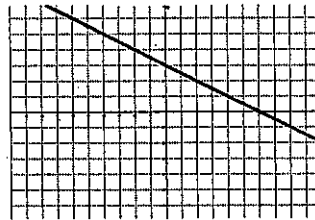Match the following with their graphs:
a) Which graph represents $f(-x)$ → reflect y
b) Which graph represents $-f(x)$ → reflect x
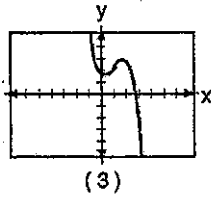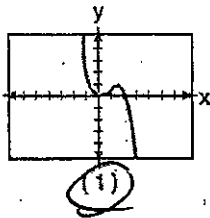
y

X

a

b

12. The graph to the right represents g(x).
Match the following with their graphs:
a) Which graph represents $g(-x)$ reflect y
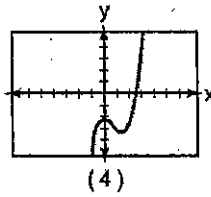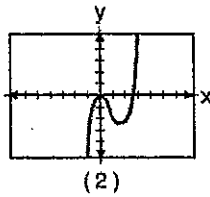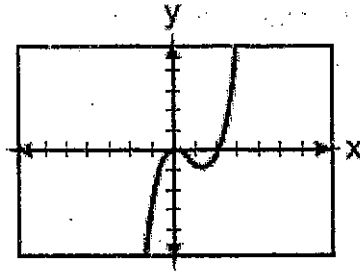b) Which graph represents $-g(x)$ reflect x
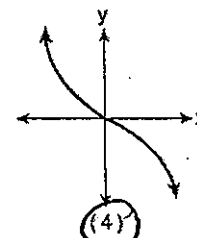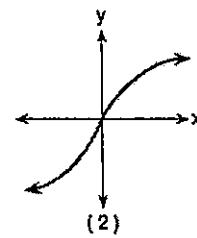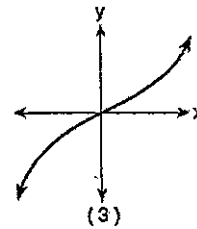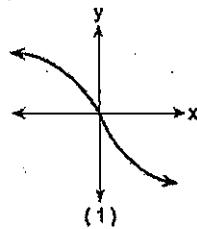
b

a

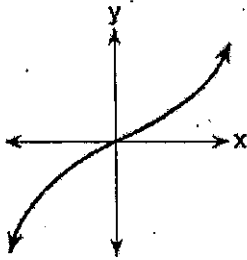13. The accompanying graph represents the equation $y = f(x)$.

Which graph represents $g(x)$, if $g(x) = -f(x)$?

reflect x

(1)

(3)

(2)

(4)

14. The graph below represents $f(x)$.

Which graph best represents $f(-x)$?

reflect y

(1)

(3)

(2)

(4)

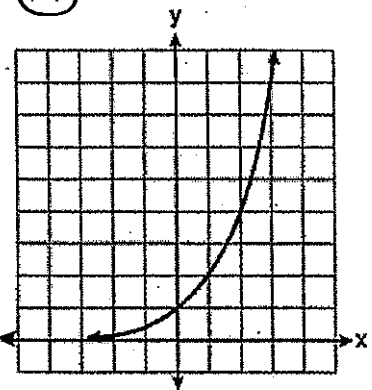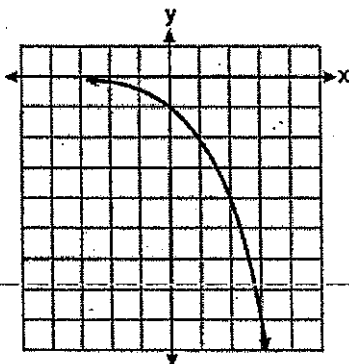15. Consider the function $y = h(x)$, defined by the graph to the right.
Which equation could be used to represent the graph shown below?
1) $y = h(x) - 2$
2) $y = h(x - 2)$
3) $y = -h(x)$
4) $y = h(-x)$

reflection over x-axis
negate the y (whole thing)