



Linear Transformation Worksheet #1

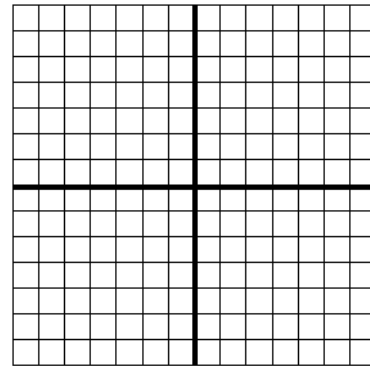
Name _____ Date _____ Period _____

Describe the change in terms of $f(x)$ (write the rule) for the transformation described.

1. vertical translation 3 units down 1. _____
2. vertical compression by a factor of $\frac{1}{4}$ 2. _____
3. horizontal translation 5 units left 3. _____
4. reflection across the x -axis 4. _____

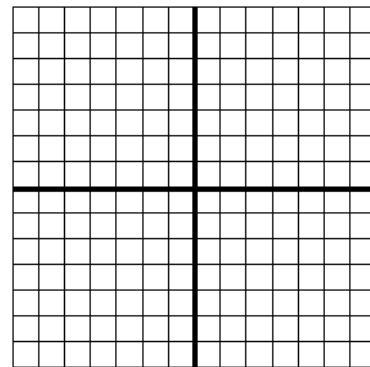
5. $f(x) = x + 3$

Translate $f(x)$ down 5 units.
Write the transformed function in terms of $g(x)$ and then graph both on the right.



6. $f(x) = 4x - 3$

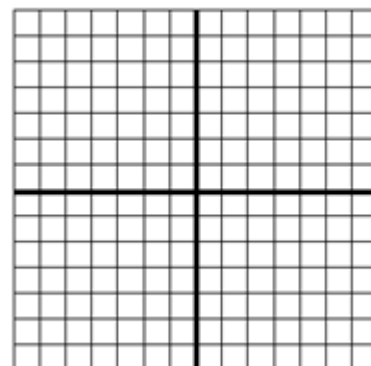
Translate the graph 2 up and then 2 to the right.
Write the transformed function in terms of $g(x)$ and then graph both on the right.



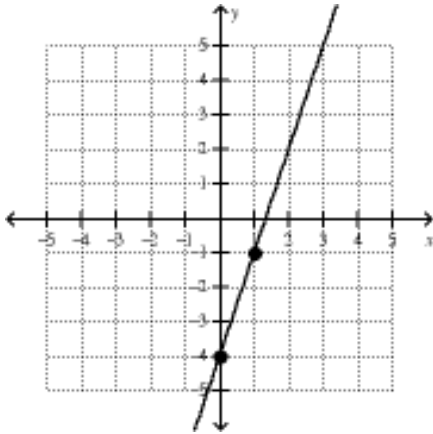
7. $f(x) = 2x - 3$

Transform $f(x)$ with a vertical stretch of 2 and then reflect over the x -axis.

Write the transformed function in terms of $g(x)$ and then graph both on the right.



8. (a) Use the graph to determine the function rule for $f(x)$.
 (b) Let $g(x)$ be a vertical translation 2 units down of $f(x)$.
 (c) Write the function rule for $g(x)$.
 (d) Graph $g(x)$



(a) $f(x) = \underline{\hspace{1cm}}x + \underline{\hspace{1cm}}$

(b) Rule: $\underline{\hspace{2cm}}$

(c) $g(x) = \underline{\hspace{2cm}}$

9. (a) Use the table to determine the function rule for $f(x)$.
 (b) Let $g(x)$ be a vertical stretch of $f(x)$ by a factor of 2.

x	0	3	6
f(x)	5	11	17

(a) $f(x) = \underline{\hspace{1cm}}x + \underline{\hspace{1cm}}$

(b) Rule: $\underline{\hspace{2cm}}$

(c) $g(x) = \underline{\hspace{2cm}}$

10. Let $f(x) = 3x - 2$. Use the given function to describe the listed transformations. Then, write the equation of the transformed function.

a. $2f(x)$

b. $f(x) - 7$

c. $f(x + 2)$

d. $-3f(x)$