

Section 1.2 Extra Practice

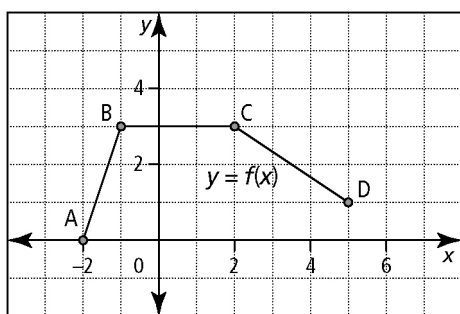
1. Consider
- $f(x) = 2x - 4$
- .

- Create a table of values for $f(x)$.
- Graph $f(x)$ and $g(x) = -f(x)$ on the same grid.
- How is the graph of $g(x)$ related to $f(x)$?
- Name the invariant point(s), if any.

2. Consider the function
- $f(x) = (x - 4)^2$
- .

- Create a table of values for $f(x)$.
- Graph $f(x)$ and $h(x) = f(-x)$ on the same grid.
- How is the graph of $h(x)$ related to $f(x)$?
- Name the invariant point(s), if any.

3. Consider the graph of
- $y = f(x)$
- .

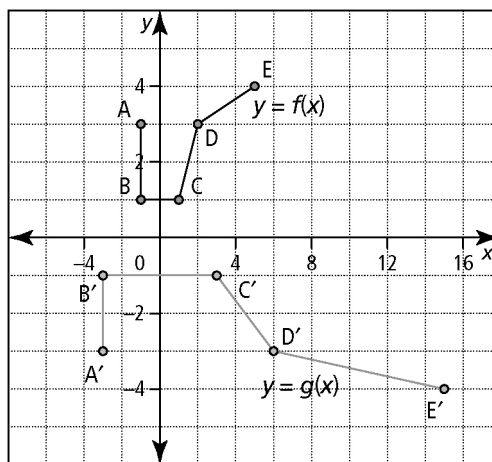


- Graph $y = 2f(x)$.
 - How is the graph of $y = 2f(x)$ related to $y = f(x)$?
 - Name the invariant point(s), if any.
4. Consider the graph of $y = f(x)$ in #3.
- Graph $y = f\left(\frac{1}{3}x\right)$.
 - How is the graph of $y = f\left(\frac{1}{3}x\right)$ related to $y = f(x)$?
 - Name the invariant point(s), if any.
5. Using mapping notation, describe how the graphs of the following can be obtained from the graph of $y = f(x)$.
- $g(x) = 3f(x)$
 - $h(x) = f(-x)$
 - $y = -f(x)$
 - $g(x) = f(3x)$

6. For the graph of
- $y = f(x)$
- , describe the effect of making the replacement described.

- | | |
|-------------------|-----------------------------|
| a) x with $3x$ | b) x with $\frac{1}{4}x$ |
| c) y with $-2y$ | d) x with $-\frac{1}{2}x$ |
| e) y with $4y$ | f) y with $\frac{1}{5}y$ |

7. Describe the transformation that must be applied to the graph of
- $f(x)$
- to obtain the graph of
- $g(x)$
- . Then, determine an equation for
- $g(x)$
- .



8. The domain of $y = f(x)$ is $\{x \mid -4 \leq x \leq 8, x \in \mathbb{R}\}$ and the range is $\{y \mid -6 \leq y \leq 12, y \in \mathbb{R}\}$. What are the domain and range of $g(x) = \frac{1}{3}f\left(\frac{1}{2}x\right)$?
9. The domain of $y = f(x)$ is $\{x \mid -12 \leq x \leq 18, x \in \mathbb{R}\}$ and the range is $\{y \mid -3 \leq y \leq 6, y \in \mathbb{R}\}$. What are the domain and range of $g(x) = -2f(3x)$?
10. Consider the function $f(x) = (x + 4)(x - 5)$. What are the zeros of the function if the graph is transformed by a horizontal stretch about the y -axis by a factor of 3 and reflected over the y -axis?

