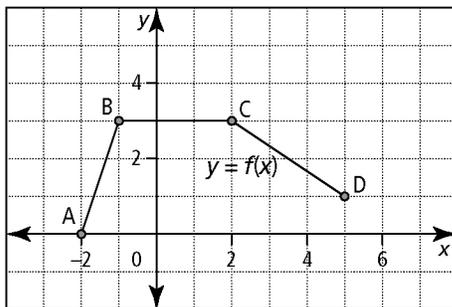


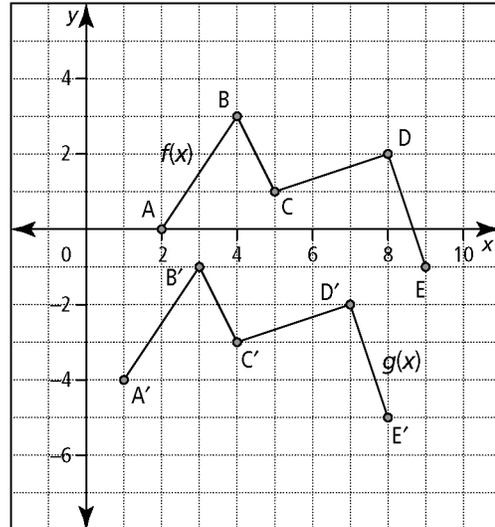
Section 1.1 Extra Practice

- Graph $f(x) = |x|$.
 - Using the graph of $f(x)$, sketch the graphs of $y - 3 = f(x)$ and $y + 2 = f(x)$ on the same axes as the original function.
 - How are each of the graphs in part a) related to $f(x) = |x|$?
- Graph the function $f(x) = x^2$.
 - Using the graph of $f(x)$, sketch the graphs of $y = f(x + 4)$ and $y = f(x - 5)$ on the same axes as the original function.
 - How are each of the graphs in part a) related to $f(x) = x^2$?
- Using mapping notation, describe how the graphs of the following functions can be obtained from the graph of $y = f(x)$.
 - $y - 6 = f(x - 3)$
 - $y + 4 = f(x)$
 - $y = f(x + 2) + 4$
 - $y + 2 = f(x - 1)$
- Describe the transformation that can be applied to the graph of $f(x)$ to obtain the graph of the transformed function.
 - $g(x) = f(x + 2) + 3$
 - $h(x) = f(x - 5) - 7$
 - $s(x) = f(x + 4)$
 - $t(x) = f(x) + 6$



- Use the function $y - 5 = f(x + 3)$ to state the coordinates of the image points A' , B' , C' , and D' .
- Sketch the graph of the transformed function.

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



- Describe the translation that has been applied to the graph of $f(x)$ to obtain the graph of $g(x)$.
 - Determine the equation of the translated function in the form $y - k = f(x - h)$.
- For each given transformation, identify the values of k and h . Then, write the equation of the transformed function in the form $y - k = f(x - h)$.
 - $f(x) = x^2$ translated 3 units to the left and 2 units up
 - $f(x) = |x|$ translated 5 units to the right and 1 unit down
 - $y = g(x)$ translated 9 units to the right and 5 units down
 - $y = \frac{1}{x}$ translated 4 units to the left and 9 units up
 - What vertical translation is applied to $y = x^2$ if the transformed graph passes through the point $(3, 5)$?

