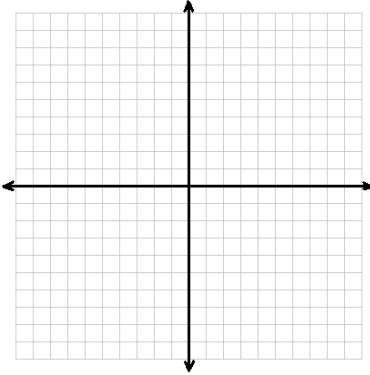


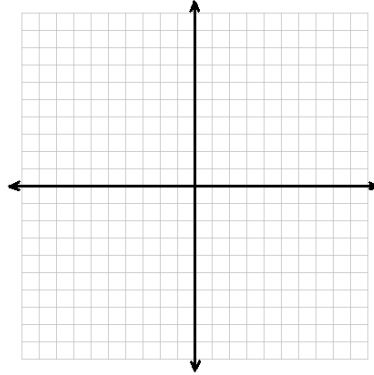
The Graph-Translation Theorem – in book: Section 3.2 p. 159

Graph each function below and describe how it is related to its parent graph.

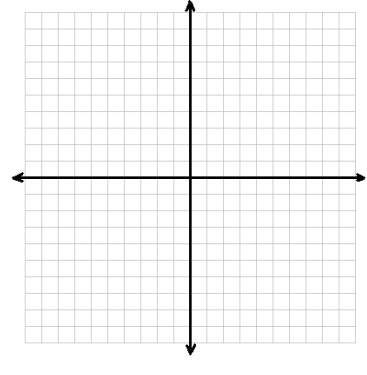
1. $y = |x| + 2$



2. $y = (x + 1)^3$

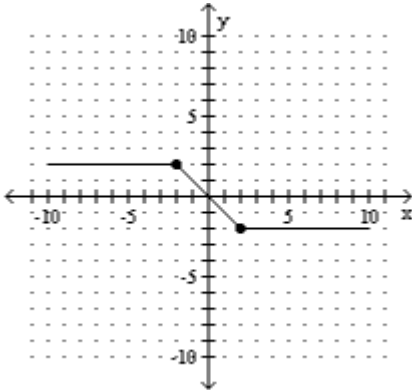


3. $y = \sqrt{x - 3} - 4$

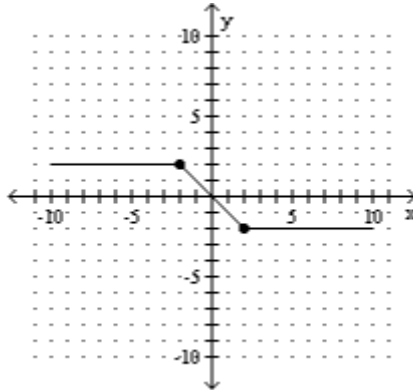


The graph of $f(x)$ is shown at left. Sketch a graph of each function based on the graph of $f(x)$.

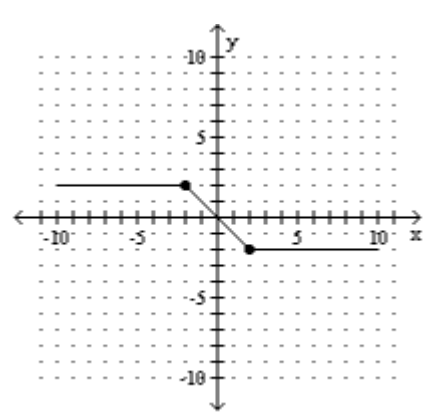
4. $f(x)$



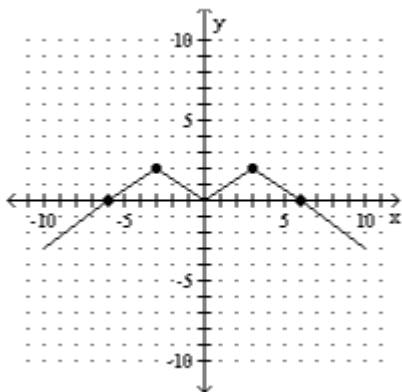
$g(x) = f(x + 3)$



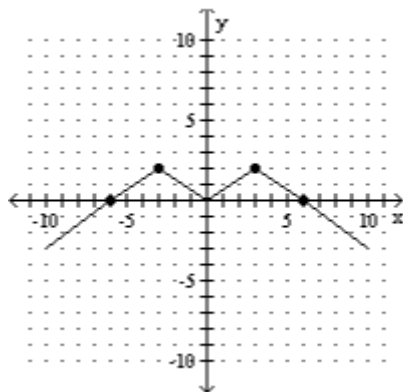
$h(x) = f(x) - 4$



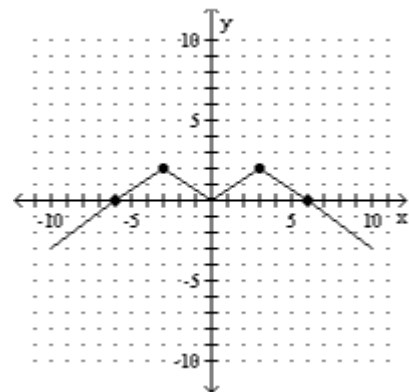
5. $f(x)$



$g(x) = f(x - 5) + 4$

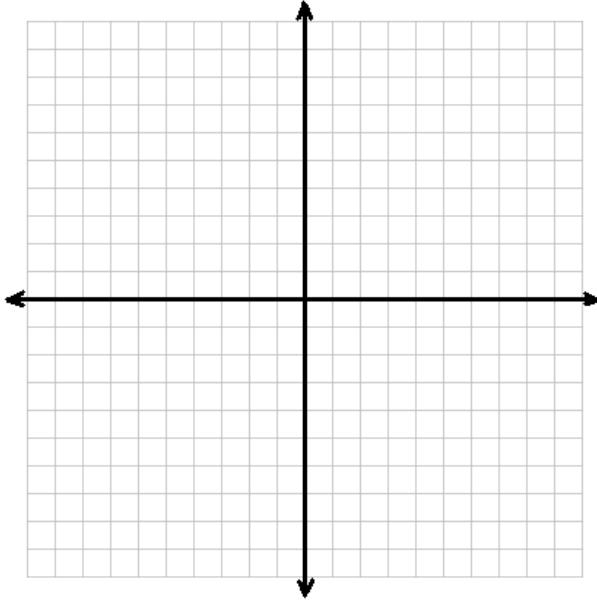


$h(x) = f(x + 2) - 7$



Sketch each graph and its parent on the same set of axes. Write an equation for the parent graph and a rule for the translation.

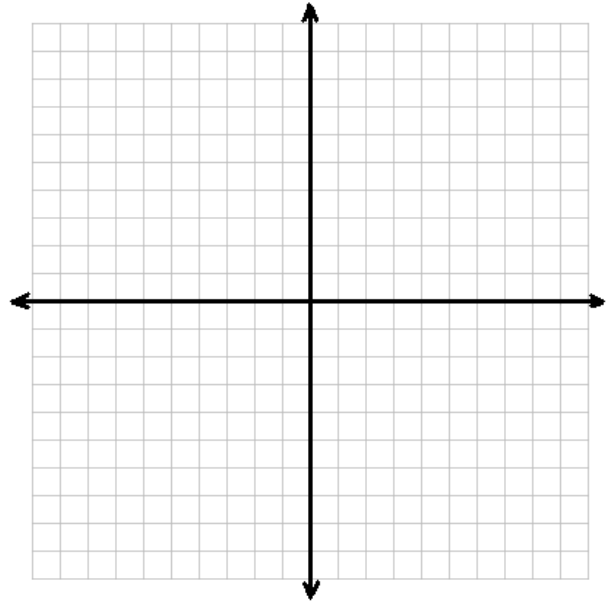
6. $f(x) = 2^{x-3} - 7$



$T(x, y) = (\quad , \quad)$

Equation of parent graph: _____

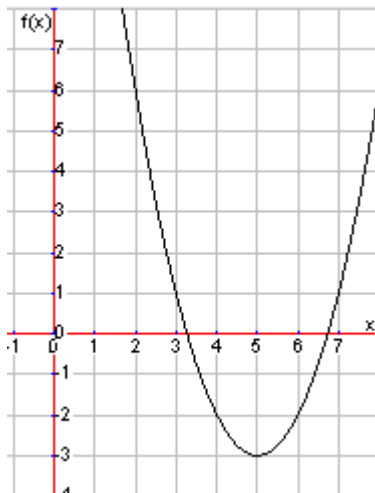
7. $f(x) = (x + 1)^3 + 2$



$T(x, y) = (\quad , \quad)$

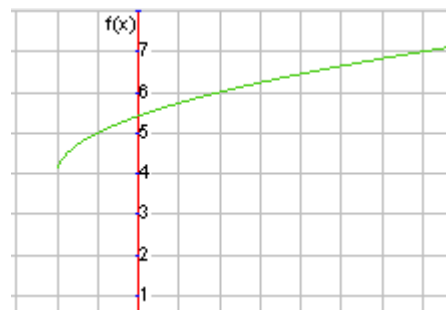
Equation of parent graph: _____

8. The graph below is a translation image of the graph of $y = x^2$.



Write an equation for the function that is graphed.

9. The graph below is a translation image of the graph $y = \sqrt{x}$.



Write an equation for the function that is graphed.