

# 1.2 Day 1 Transformations BLANK

Sunday, September 8, 2019 11:39 AM

## ESSENTIAL QUESTION



What do the differences between the equation of a function and the equation of its parent function tell you about the differences in the graphs of the two functions?

### Example 1

A. Graph the function  $f(x) = x^2$  for the domain  $[-2, 2]$ . The graph of  $g$  is obtained from the graph of  $f$  with a transformation 3 units down. How are the equations, domains, and ranges of  $f$  and  $g$  related?

A **translation** like this one is a particular kind of transformation of a function: one that shifts each point on a graph the same distance and direction. Other kinds of **transformations** of a function either reflect its graph across an axis, or stretch or compress its graph.

In general, if  $g(x) = f(x) + k$ , then the graph of  $g$  is a vertical translation of the graph of  $f$  by  $k$  units.

**B. Graph the function  $f(x) = x^2$  for the domain  $[-2, 2]$ . The graph of the function  $g$  is obtained from the graph of  $f$  with a translation 3 units to the right. How are the equations, domains, and ranges of  $f$  and  $g$  related?**

In general, if  $g(x) = f(x - h)$ , then the graph of  $g$  is a horizontal translation of the graph of  $f$  by  $h$  units.

Example 2

**A. Graph  $f(x) = 2x - 6$  and the function  $g$ , a reflection of the graph of  $f$  across the  $x$ -axis. How are their equations related?**

**B. Graph  $f(x) = 2x - 6$  and the function  $h$ , a reflection of the graph of  $f$  across the  $y$ -axis. How are their equations related?**