

## Chapter 6 –Section 6.2 Vertical Stretches and Compressions

## TICKET-IN-THE-DOOR

In order to be prepared for class you must watch the module and complete the following activity. This is due first thing when you get to class.

Given  $y = f(x)$  describe in words the transformation when  $k$  is a positive constant:

- $y = kf(x)$ 
  - when  $0 < k < 1$
  - when  $k > 1$

Check your understanding:

1. The graph of  $f(x)$  contains the point  $(3, -2)$ . What corresponding point must be on the graph of  $g(x) = 2f(x - 9)$ ?
2. The US population in millions is  $P(t)$  today and  $t$  is in the years. Write in words the meaning of the following with respect to the context of the problem.
  - a)  $P(t) - 10$
  - b)  $P(t) + 10$
  - c)  $P(t + 10)$
  - d)  $.10P(t)$
3. The domain of  $f(x)$  is  $-6 \leq x \leq 8$  and the range is  $6 \leq y \leq 12$ . If  $g(x) = 3f(x - 6)$ , what is the domain and range of  $g(x)$ ?
4. The graph of  $g(x)$  is the graph of  $f(x)$  after it has been vertically stretched or shrunk. The point  $(3, 6)$  lies on the graph of  $f(x)$ . The corresponding point on the graph of  $g(x)$  is  $(3, 12)$ . What is a possible formula for  $g(x)$  in terms of  $f(x)$ ?