Chapter 6 –Section 6.3 Horizontal Stretches and Combinations of Transformations
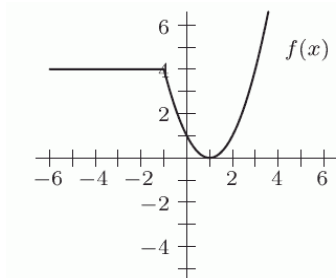
TICKET-IN-THE-DOOR

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:
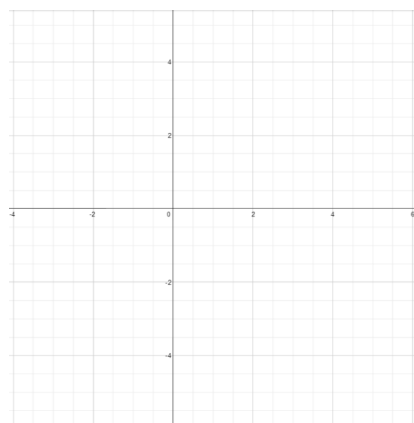
- $y = f(kx)$
  - when $0 < k < 1$
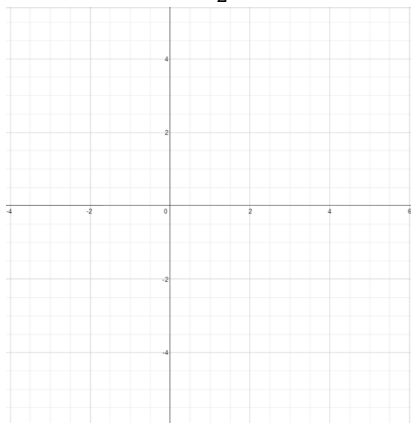 - when $k > 1$

Check your understanding:

1. The graph of $h(x)$ contains the point $(-5, 10)$. What is the **corresponding point** on the graph of $y = h(5x)$?

2. The point $(2, -8)$ lies on the graph of f. If the graph of f is compressed vertically by a factor of $\frac{1}{5}$ and stretched horizontally by a factor of 11, **what point** must lie on the <u>transformed graph</u>?

3. The graph of a function f has been stretched vertically by a factor of 8, compressed horizontally by a factor of 1/6, and then shifted up 2 units and shifted 6 units to the left. The new graph is produced by a function g. **Write a formula for g in terms of f.**

4. The graph of the $f(x)$ is show below. Graph each transformed function and list in words the transformation used.

a) $g(x) = f(-x) + 1$

b) $h(x) = -\frac{1}{2}f(x) - 2$

c) $k(x) = 2f(x + 3) - 1$