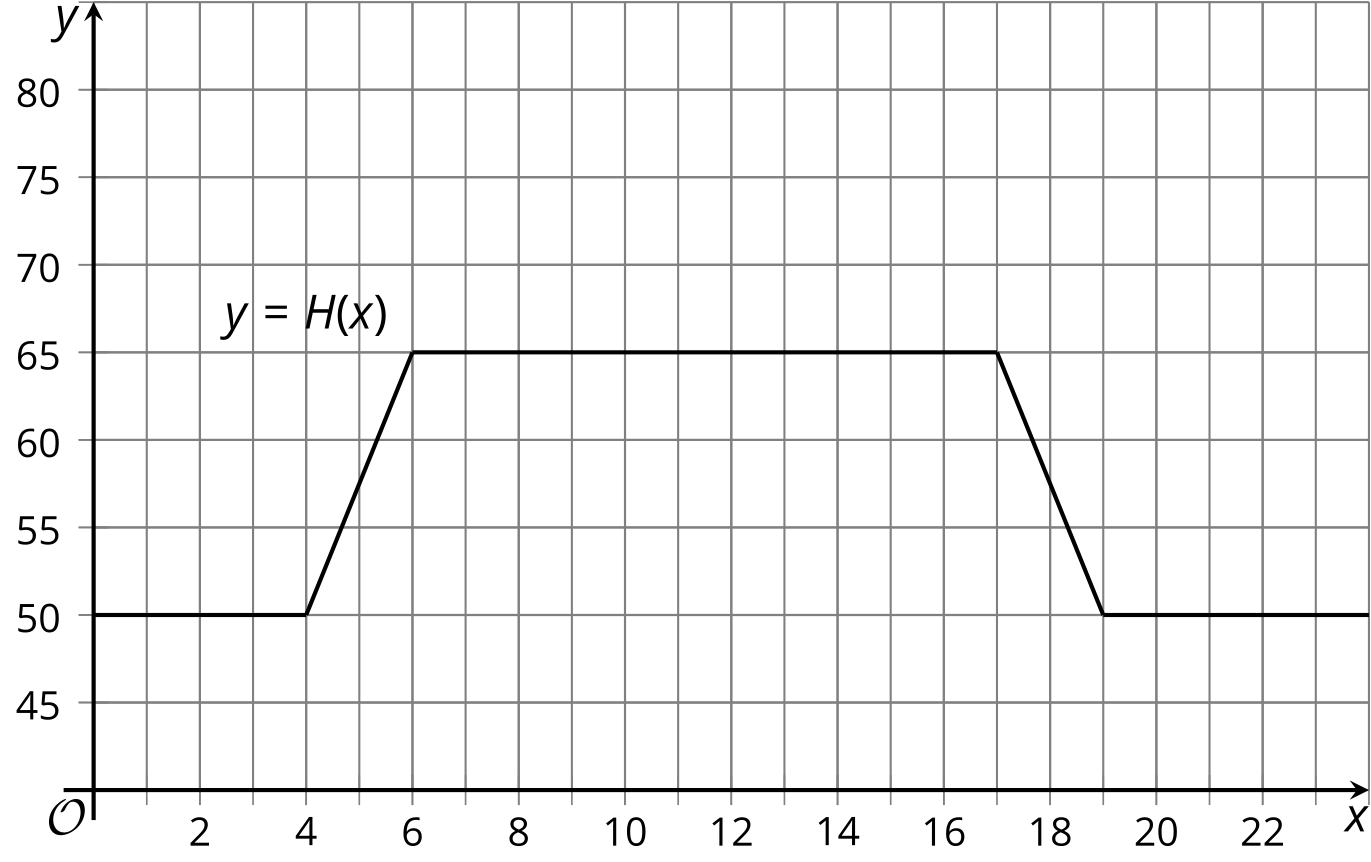
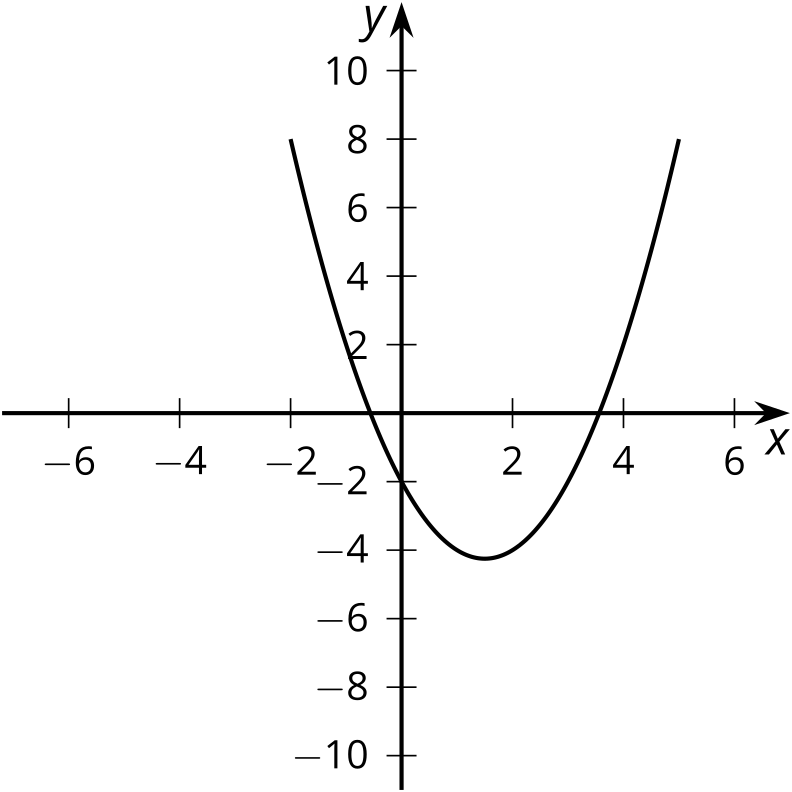
### Lesson 2 Practice Problems

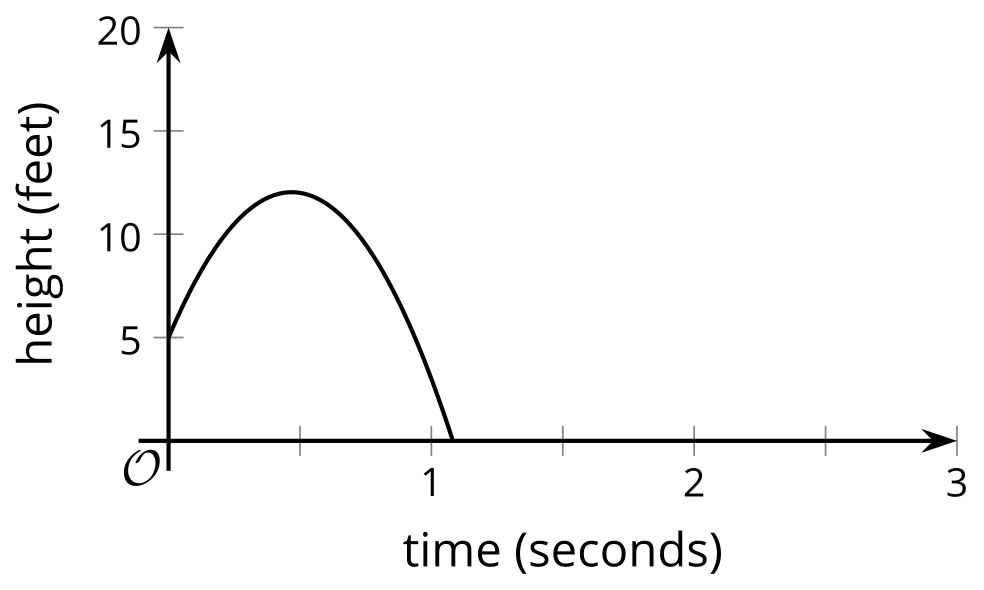
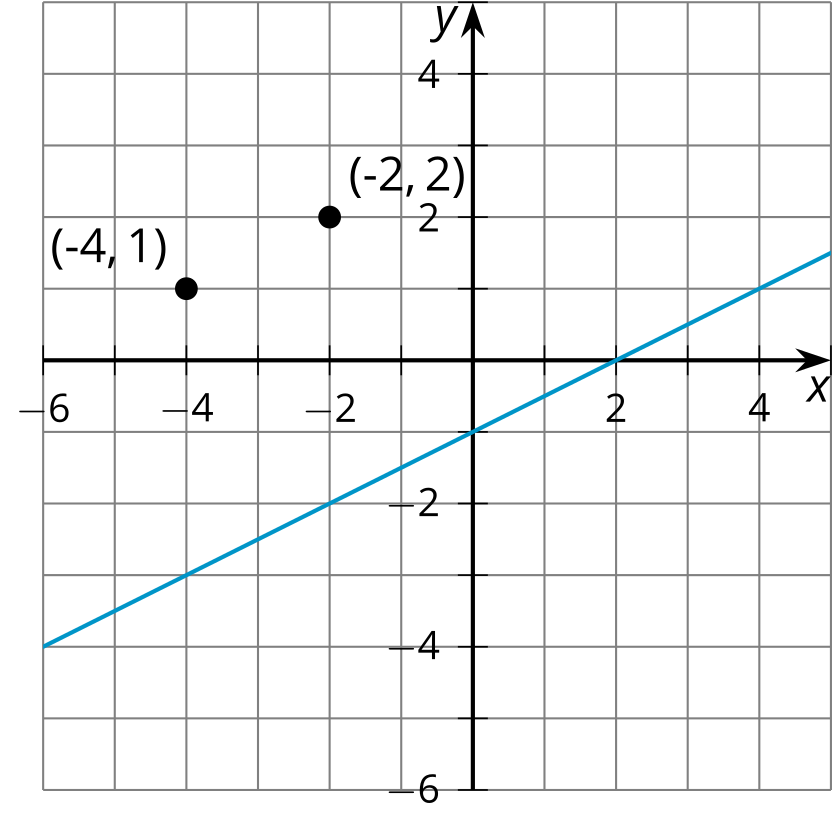
1. The thermostat in an empty apartment is set to  from 4:00 a.m. to 5:00 p.m. and to  from 5:00 p.m. until 4:00 a.m. Here is a graph of the function that gives the temperature in degrees Fahrenheit in the apartment hours after midnight.

* 
  1. The owner of the apartment decides to change to a new schedule and they set the thermostat to change 3 hours later in the morning and the evening. On the same axes, sketch a graph of the new function, , giving the temperature as a function of time.
  2. Explain what means in this context. Why is this a reasonable value for the function?
  3. If , then what is the corresponding point on the graph of ? Use function notation to describe the point on the graph of .
  4. Write an expression for in terms of .

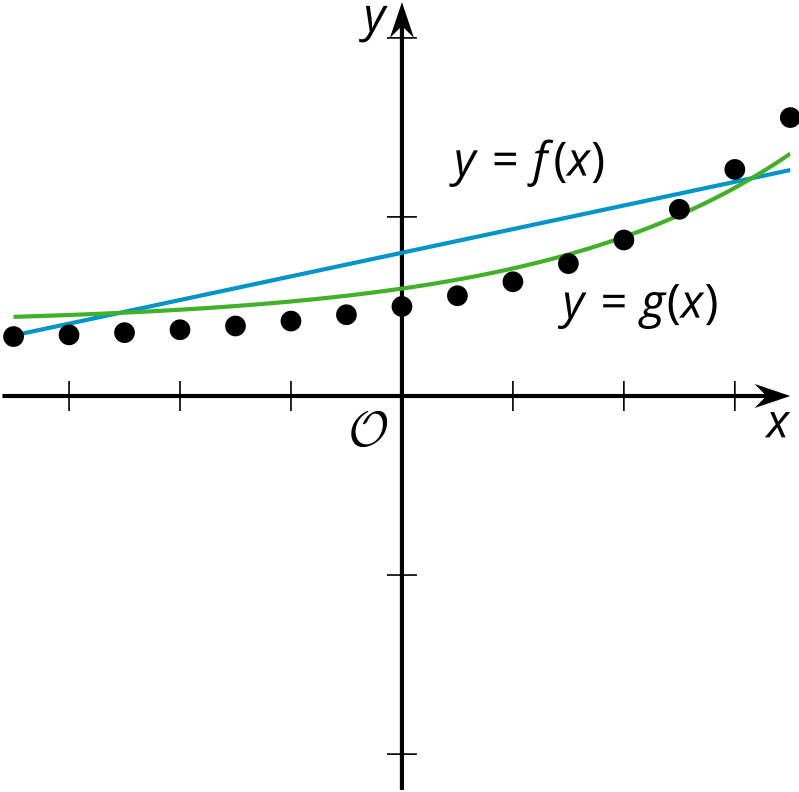
1. A pumpkin pie recipe says to bake the pie at for 15 minutes, and then to adjust the temperature down to  for 45 additional minutes. The function gives the oven temperature setting , in degrees Fahrenheit, minutes after the pie is placed in the oven.
   1. Explain what means in this context.
   2. Diego discovers that the temperature inside the oven is always 25 degrees warmer than the oven’s temperature setting. The function gives the actual temperature of Diego’s oven. If , then what is the corresponding point on the function ?
   3. Write an expression for in terms of .
2. Here is the graph of for a function .
   1. On the same axes, sketch a graph of .
   2. On the same axes, sketch a graph of .
   3. How do the graphs of and compare to ?

* 

1. The graph shows the height of a tennis ball seconds after it has been hit.

* 
* The function given by models the height of the ball in feet.
  1. How high was the ball when it was hit? Where do you see this in the equation?
  2. Suppose a second ball follows the same trajectory but is hit from 7 feet off the ground. Sketch the graph of the height of the second ball on the same axes.
  3. Write an equation for a function  that defines the height , in feet, of the second ball hit from 7 feet off the ground in terms of .
  4. Describe a horizontal translation of the line to a line that contains the two labeled points.
  5. Describe a vertical translation of the line to a line that contains the two labeled points.
* 
* (From Unit 5, Lesson 1.)

1. Does the function or the function fit the data better? Explain your reasoning.

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* (From Unit 5, Lesson 1.)



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