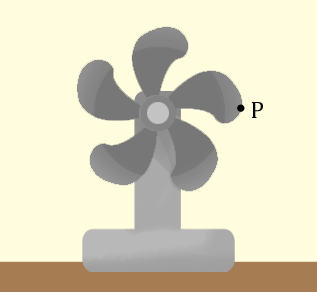
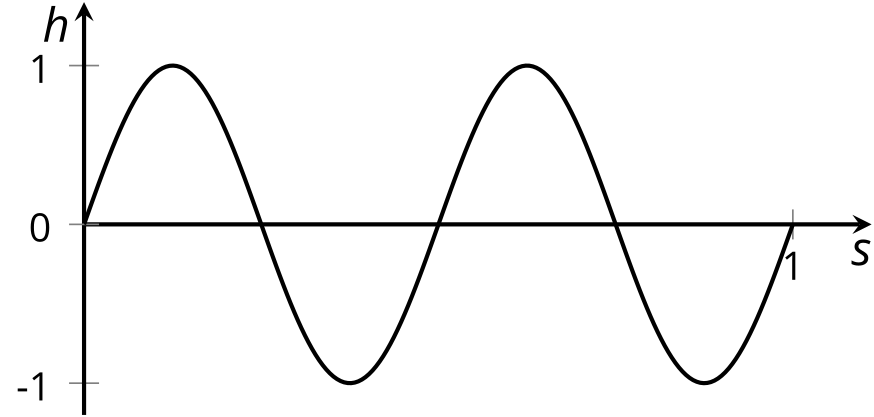
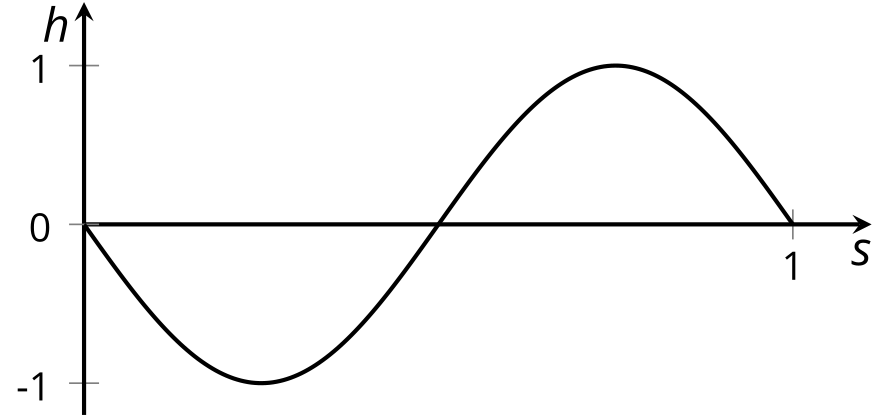
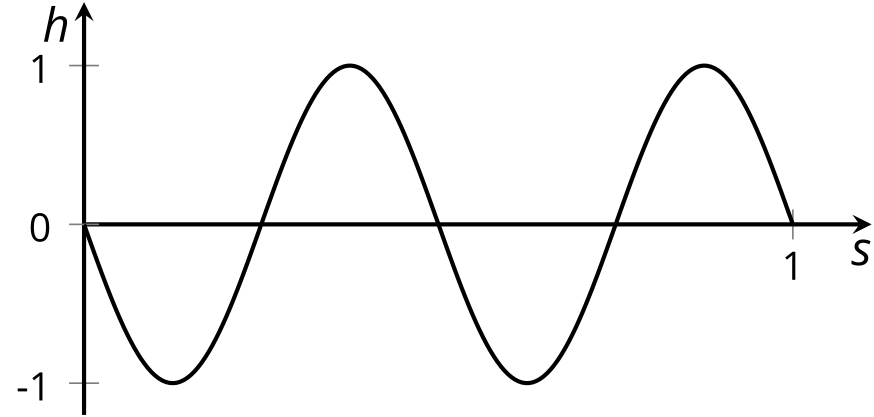
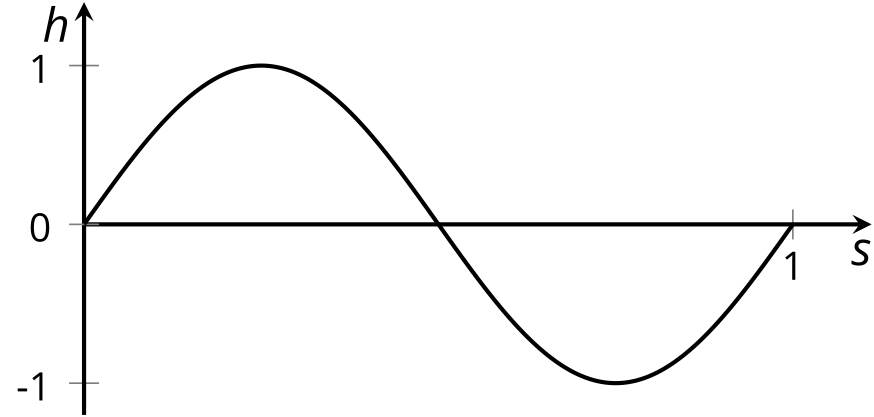
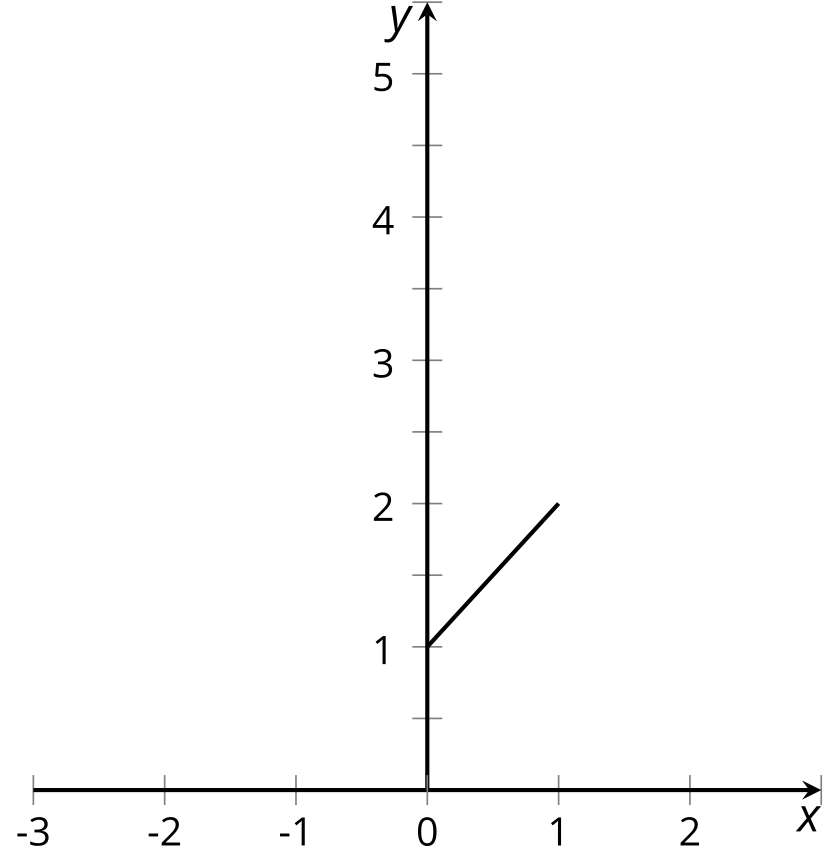
### Lesson 8 Practice Problems

1. A fan blade spins counterclockwise once per second.

* Which of these graphs best depicts the height, , of after seconds? The fan blades are 1 foot long and the height is measured in feet from the center of the fan blades.
* 
  1. 
  2. 
  3. 
  4. 

1. Which situations are modeled accurately by a periodic function? Select **all** that apply.
   1. the distance from the earth to the sun as a function of time
   2. the vertical height of a point on a rotating wheel as a function of time
   3. the area of a sheet of paper as a function of the number of times it is folded in half
   4. the number of centimeters in inches
   5. the height of a swinging pendulum as a function of time
   6. the height of a ball tossed in the air as a function of time
2. Here is the graph of a function for some values of .

* 
  1. Can you extend the graph to the whole plane so that the function is periodic? Explain your reasoning.
  2. Can you extend the graph to the whole plane so that the function is not periodic? Explain your reasoning.
  3. Can a non-constant linear function be periodic? Explain your reasoning.
  4. Can a quadratic function be periodic? Explain your reasoning.

1. Do and lie on the same circle centered at ? Explain how you know.

* (From Unit 6, Lesson 1.)

1. The measure of angle is between 0 and radians. Which statements *must* be true of and ? Select **all** that apply.
   1. If , then .
   2. If , then .
   3. .
   4. The point lies on the unit circle.

* (From Unit 6, Lesson 5.)

1. The center of a clock is the origin in a coordinate system. The hour hand is 4 units long. What are the coordinates of the end of the hour hand at:
   1. 3:00
   2. 8:00
   3. 11:00

* (From Unit 6, Lesson 7.)



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