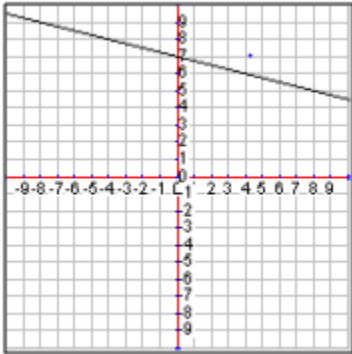


Functions 8.F.5 Post-Test

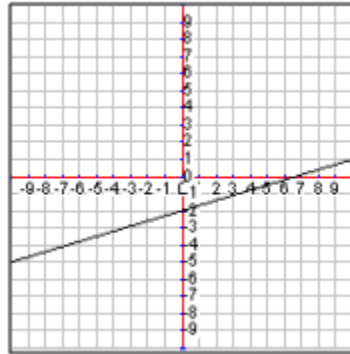
Please do not use a calculator.

Tell whether the following linear function is increasing, decreasing, or constant.

1. $y = -\frac{1}{4}x + 7$

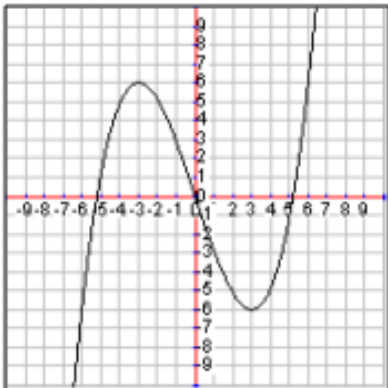


2. $y = 0.3x - 2$



For the following functions tell for what inputs they are increasing and for what inputs they are decreasing.

3. $y = \frac{1}{9}x^3 - 3x$

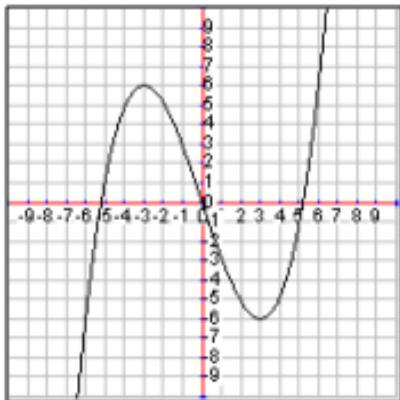


4. $y = -(x - 3)^2 + 5$



For the following functions give the max or min (local or absolute).

5. $y = \frac{1}{9}x^3 - 3x$

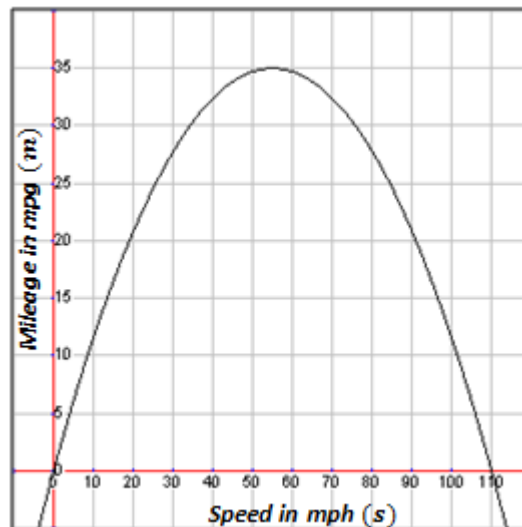


6. $y = -(x - 3)^2 + 5$



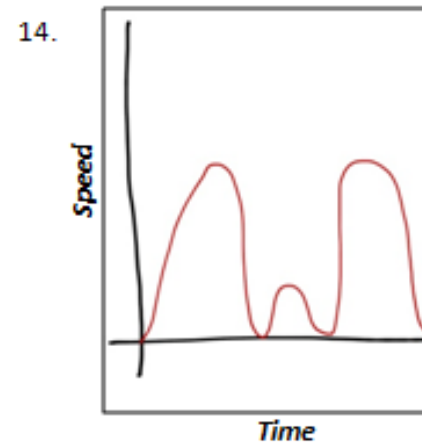
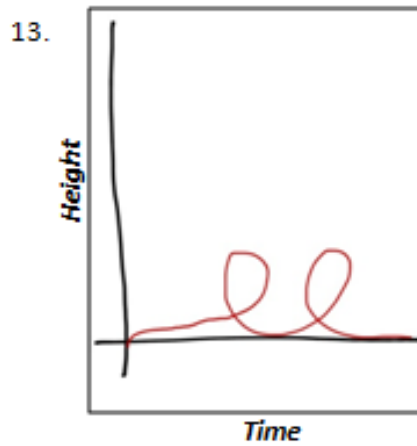
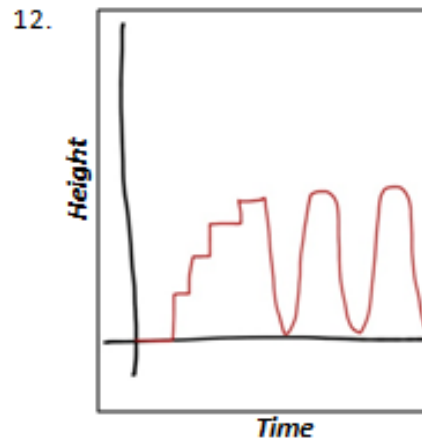
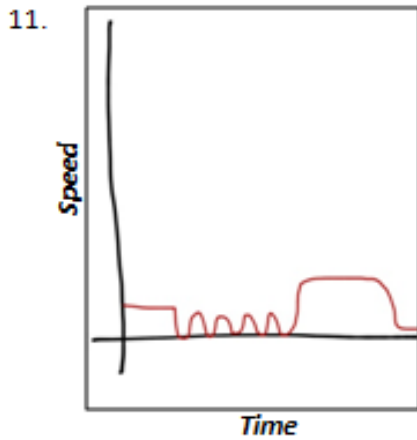
Use the following graph showing a function modeling the miles per gallon (m) a car gets in terms of its speed (s) to answer the questions.

7. What appears to be the best mileage this car will get?
8. At what speed does the best mileage occur?
9. What are all the possible speeds this car can drive at?
10. What are all the possible gas mileages that this car can get?

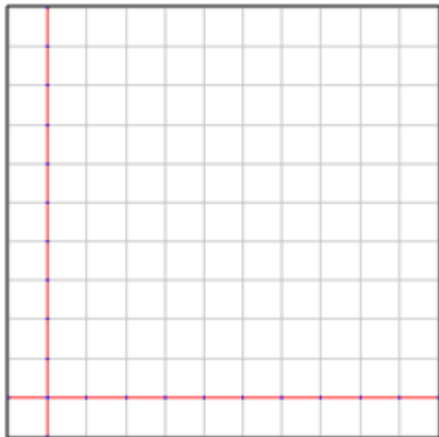


Determine whether each of the following graphs match the story and explain why.

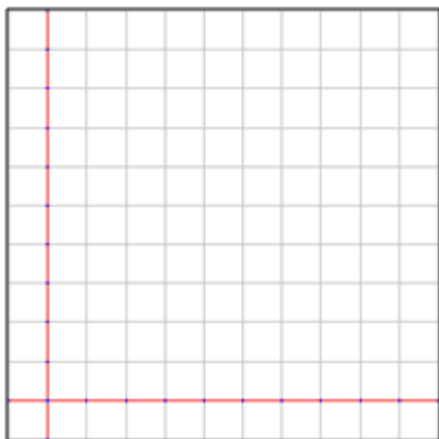
Penelope went to the circus and decided to ride the Ferris wheel. She first stood in a line that moved at a snail's pace. When she finally got on the Ferris wheel, it would move a little bit at a time and then stop to let the next passengers on before moving again. When she was at the top, the Ferris wheel began to move a bit faster at a constant speed. She then made two full rotations before the ride stopped with her at the bottom.



Sketch a graph modeling a function for the following situations.



15. A dog is sleeping when he hears the cat “meow” in the next room. He quickly runs to the next room where he slowly walks around looking for the cat. When he doesn’t find the cat, he sits down and goes back to sleep. Sketch a graph of a function of the dog’s speed in terms of time.



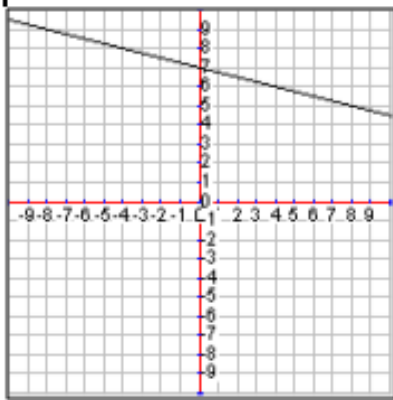
16. A boy stands still looking up at the big slide, the one he’s always been afraid of. He then slowly climbs up the long ladder. At the top of the slide, the boy stops to gather his courage. With a look of determination on his face, the boy plunges down the slide going faster than he’s ever gone before. Finally the boy crashes to a stop at the bottom where he giggles with joy. Sketch a graph of a function of the boy’s speed in terms of time.

Functions 8.F.5 Post-Test Answers

Please do not use a calculator.

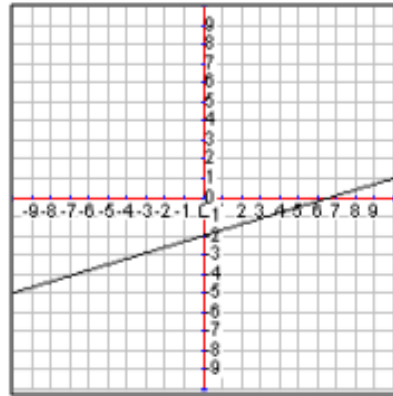
Tell whether the following linear function is increasing, decreasing, or constant.

1. $y = -\frac{1}{4}x + 7$



Decreasing

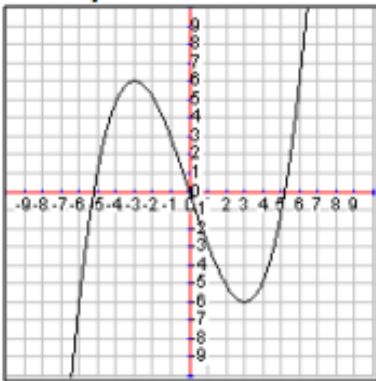
2. $y = 0.3x - 2$



Increasing

For the following functions tell for what inputs they are increasing and for what inputs they are decreasing.

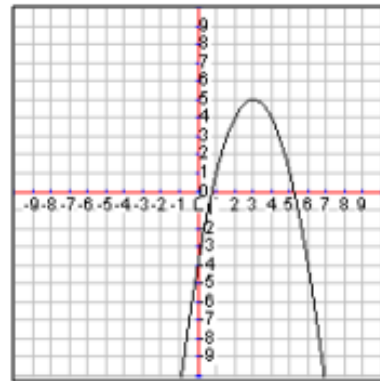
3. $y = \frac{1}{9}x^3 - 3x$



Increasing on inputs less than -3 and greater than 3

Decreasing on inputs between -3 and 3

4. $y = -(x - 3)^2 + 5$

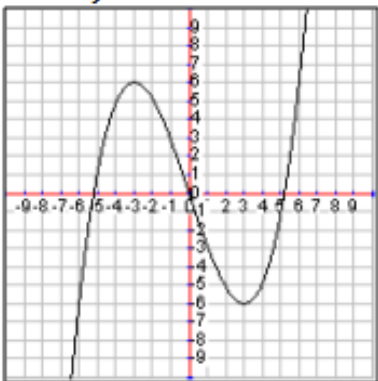


Increasing on inputs less than 3

Decreasing on inputs greater than 3

For the following functions give the max or min (local or absolute).

5. $y = \frac{1}{9}x^3 - 3x$



Local Max: $y = 6$
Local Min: $y = -6$

6. $y = -(x - 3)^2 + 5$



Max: $y = 5$
No Min

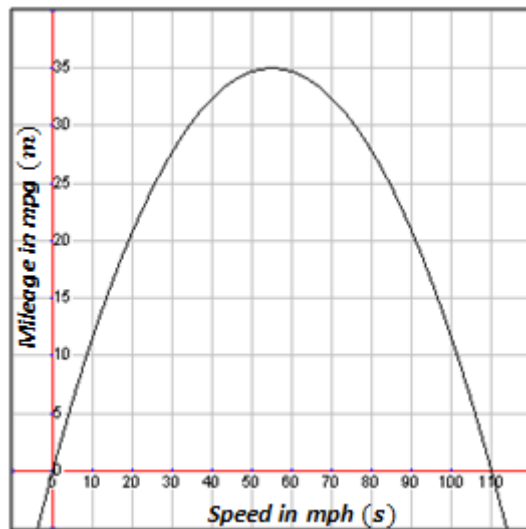
Use the following graph showing a function modeling the miles per gallon (m) a car gets in terms of its speed (s) to answer the questions.

7. What appears to be the best mileage this car will get?
35 mpg

8. At what speed does the best mileage occur?
About 55 mph

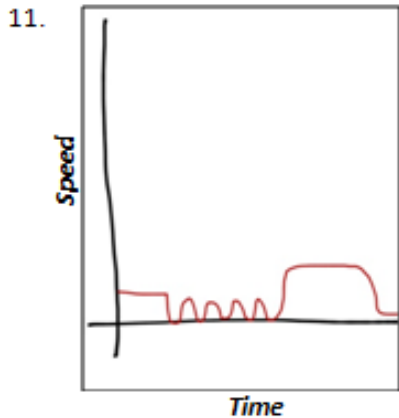
9. What are all the possible speeds this car can drive at?
Anything from 0 to 110 mph

10. What are all the possible gas mileages that this car can get?
Anything from 0 to 35 mpg

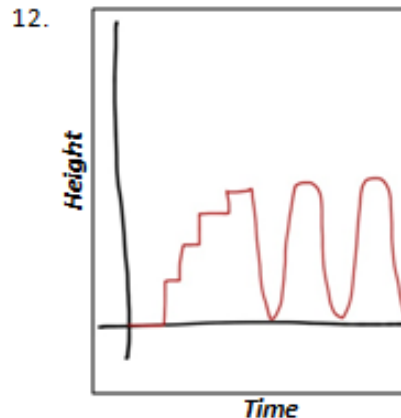


Determine whether each of the following graphs match the story and explain why.

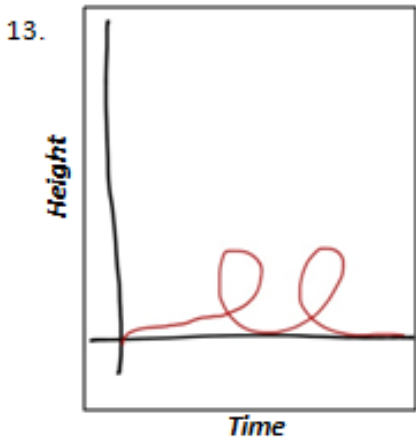
Penelope went to the circus and decided to ride the Ferris wheel. She first stood in a line that moved at a snail's pace. When she finally got on the Ferris wheel, it would move a little bit at a time and then stop to let the next passengers on before moving again. When she was at the top, the Ferris wheel began to move a bit faster at a constant speed. She then made two full rotations before the ride stopped with her at the bottom.



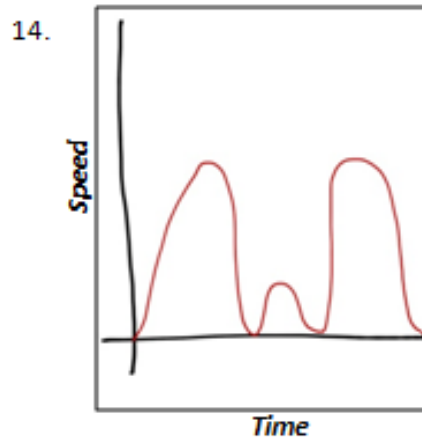
Yes, speed keeps going back to zero as she stops.



Yes, when she finally reaches the top, it then moves back up to the top two more rotations before dropping her at the bottom.

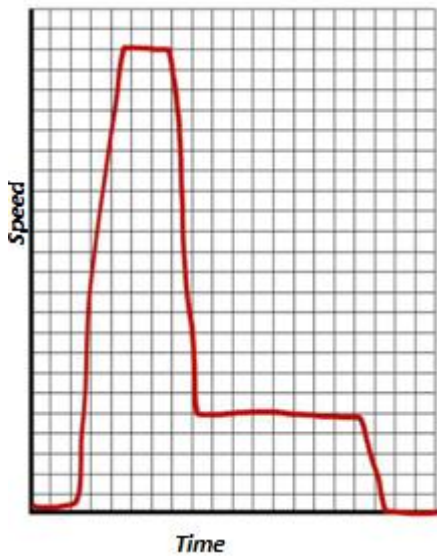


No, you can't be at two heights at the same time.

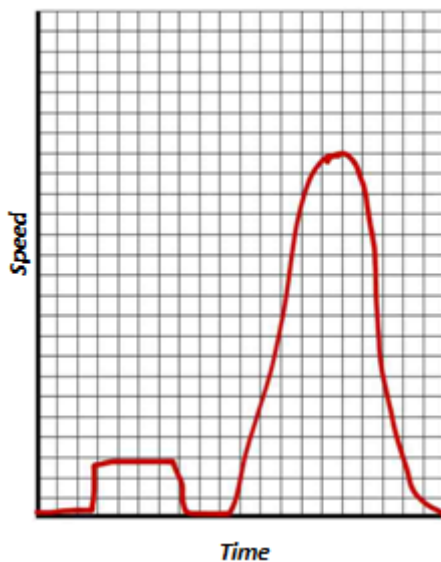


No, she didn't start off getting faster and faster.

Sketch a graph modeling a function for the following situations.



15. A dog is sleeping when he hears the cat “meow” in the next room. He quickly runs to the next room where he slowly walks around looking for the cat. When he doesn’t find the cat, he sits down and goes back to sleep. Sketch a graph of a function of the dog’s speed in terms of time.



16. A boy stands still looking up at the big slide, the one he’s always been afraid of. He then slowly climbs up the long ladder. At the top of the slide, the boy stops to gather his courage. With a look of determination on his face, the boy plunges down the slide going faster than he’s ever gone before. Finally the boy crashes to a stop at the bottom where he giggles with joy. Sketch a graph of a function of the boy’s speed in terms of time.