

Key Features Classwork

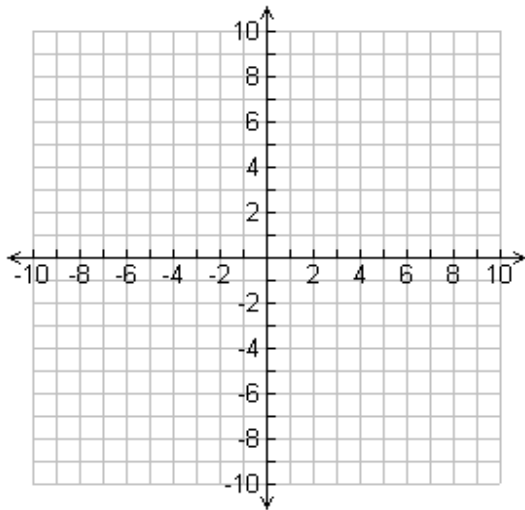
Vocabulary

X-intercept: Where the graph crosses or touches the x-axis

Y-intercept: Where the graph crosses or touches the y-axis

Maximum: the highest output (y-value) of the function

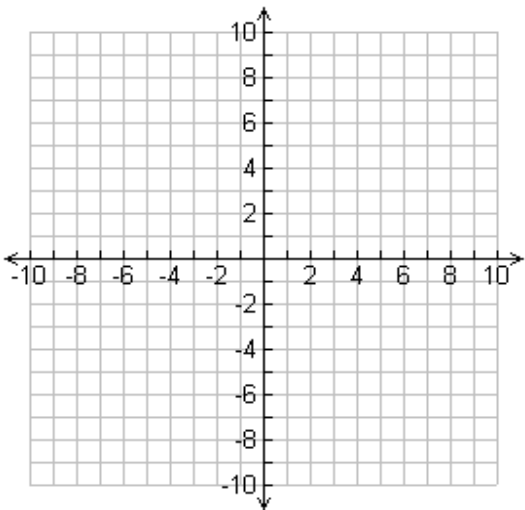
Minimum: the lowest output (y-value) of the function



x	f(x)

$$f(x) = 2x^2 - 3$$

- Predict: What do you think the graph will look like?
- Fill in the Table and Graph the function
- Domain:
- Range:
- X- intercepts:
- Y-intercepts:
- Maximum:
- Minimum:



x	g(x)

$$f(x) = -3|x - 1|$$

- Predict: What do you think the graph will look like?
- Fill in the Table and Graph the function
- Domain:
- Range:
- X- intercepts:
- Y-intercepts:
- Maximum:
- Minimum:

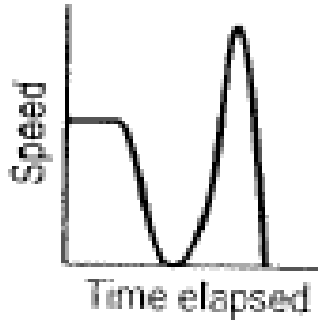
Increasing: Where the y-values go up as the x values go up (READ FROM LEFT TO RIGHT)

Decreasing: Where the y-values go down as the x values go up (READ FROM LEFT TO RIGHT)

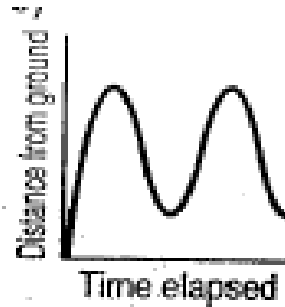
Constant: Where the y-value is the same for every x-value (READ FROM LEFT TO RIGHT)

For the following, highlight the increasing intervals in one color, the decreasing intervals in another color, and the constant intervals in a third color.

A child is sliding down a slide



A man is riding on a Ferris wheel

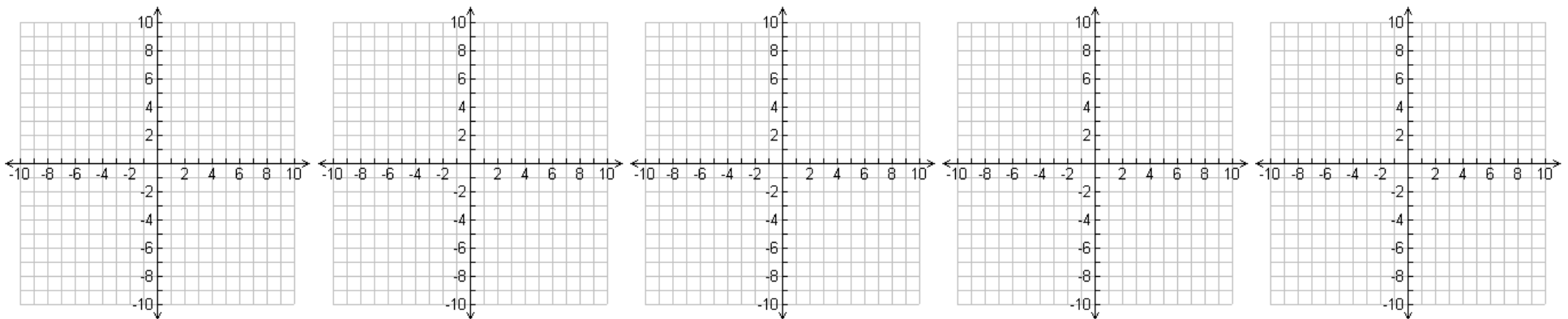


A woman is walking up a hill at a steady pace then running down the other side.

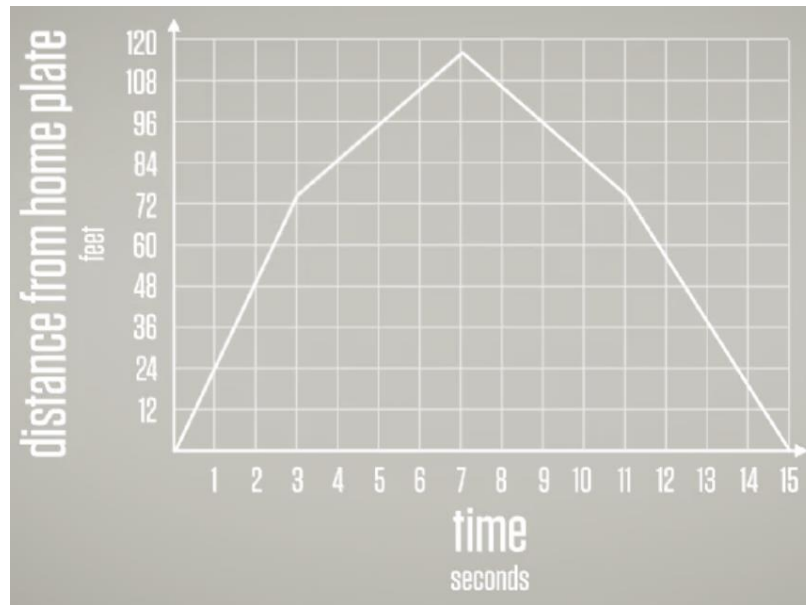


Which of these are possible? For the ones that are possible, graph them below.

- A) A graph that is increasing only, which has an x-intercept of -4 and a y-intercept of 6.
- B) A graph that is increasing, then decreasing, has x-intercepts of 5 and -5, and a y-intercept of -9.
- C) A graph that is increasing, then decreasing, then increasing again, that has x-intercepts of -8, 2, and 7, and a y-intercept of 4.
- D) A graph that is increasing, then decreasing and has only one x-intercept of 3 and only one y-intercept.
- E) A graph that is decreasing, then increasing, then decreasing, then increasing, that has two x-intercepts and a minimum of -6.
- F) A graph that is increasing only, whose x and y-intercepts are the same number.



1. Always use x values to describe intervals of increasing/decreasing/constant!
2. Always use $<$ or $>$ signs!



1. What is the x intercept? What does it represent?

5. What is the max? What does it represent?

2. What is the y-intercept? What does it represent?

6. What is the domain? What is the range? What do they mean?

3. When is it increasing? What does it represent?

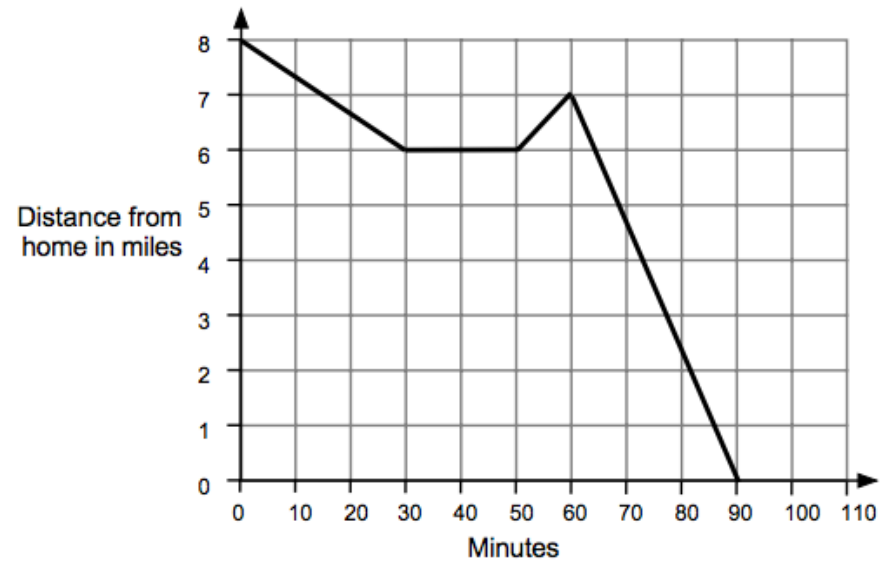
7. For what values of x is $g(x) = 96$?

4. When it decreasing? What does it represent?

8. $g(1) = ?$

Journey Home

Sylvia bikes home along a straight road from her friend's house, a distance of 8 miles. The graph shows her journey.



1. Describe what may have happened in this situation.

2. What is the domain? What is the range for this situation?

3. On what interval(s) is the graph decreasing? What does this mean in terms of the situation?

4. On what interval(s) is the graph increasing? What does this mean in terms of the situation?

5. On what interval(s) is the graph constant? What does this mean in terms of the situation?

