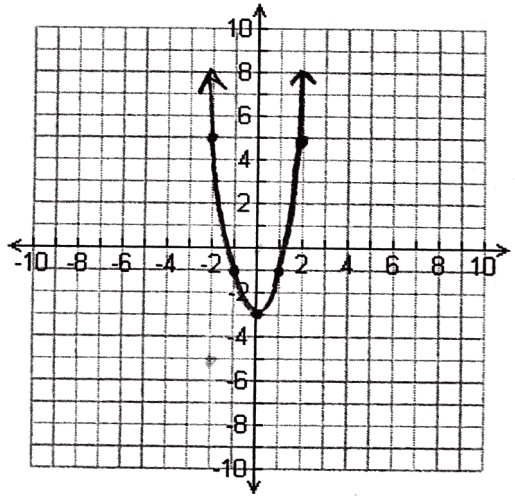
Key

Key Features Classwork

Vocabulary

X-intercept: Where the graph crosses the x-axis
Y-intercept: Where the graph crosses the y-axis

Maximum: the highest output of the function
Minimum: the lowest output of the function



x	f(x)
-3	15
-2	5
-1	-1
0	-3
1	-1
2	5
3	15

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

a. Predict: What do you think the graph will look like? a parabola

b. Fill in the Table and Graph the function

c. Domain: all real numbers $-\infty < x < \infty$

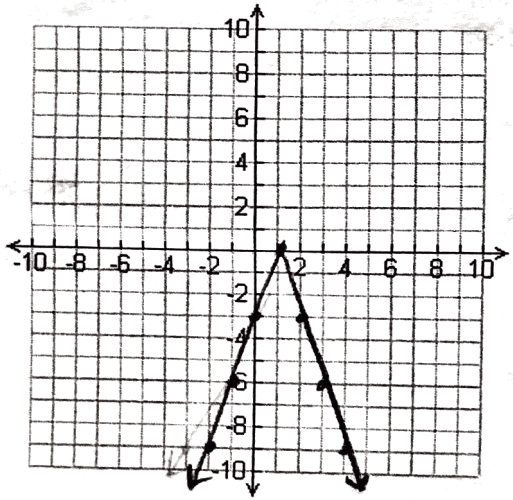
d. Range: $y \geq -3$

e. X- intercepts: ≈ -1.2, ≈ 1.2

f. Y-intercepts: -3

g, Maximum: None

h. Minimum: -3



x	g(x)
-3	-12
-2	-9
-1	-6
0	-3
1	0
2	-3
3	-6

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

a. Predict: What do you think the graph will look like? a V

b. Fill in the Table and Graph the function

c. Domain: all real numbers $-\infty < x < \infty$

d. Range: $y \leq 0$

e. X- intercepts: 1

f. Y-intercepts: -3

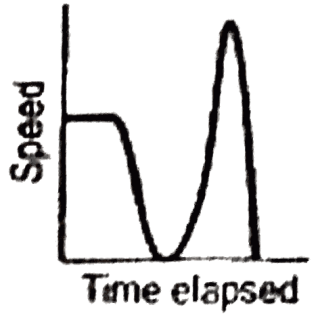
g, Maximum: 0

h. Minimum: None

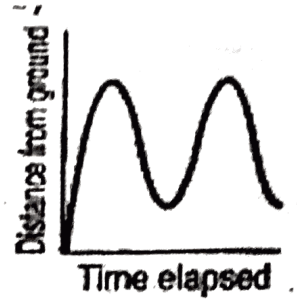
Increasing: Where the y-values go up as the x values go up (READ FROM LEFT TO RIGHT)
Decreasing: Where the y-values go down as the x values go up(READ FROM LEFT TO RIGHT)
Constant: Where the y-value is the same for every x-value (READ FROM LEFT TO RIGHT)

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

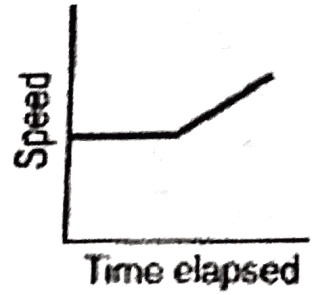
A child is sliding down a slide



A man is riding on a Ferris wheel

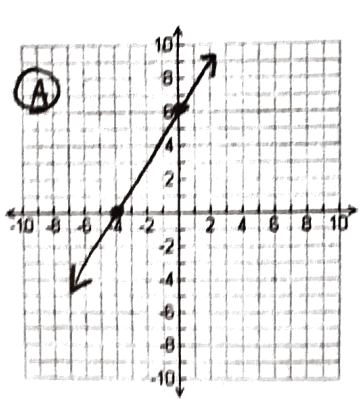


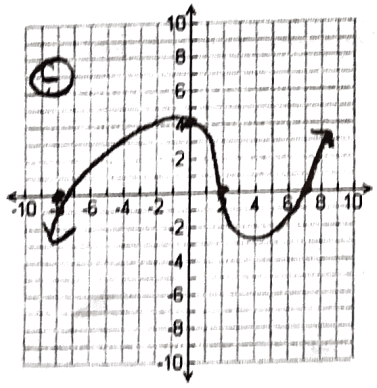
A woman is walking up a hill t a steady pace then running down the other side.

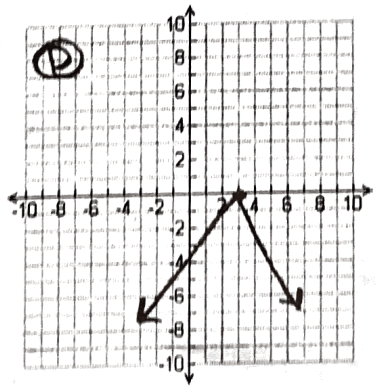


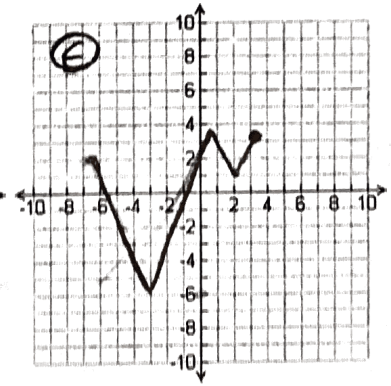
Which of these is possible? For the ones that are possible, graph them below.

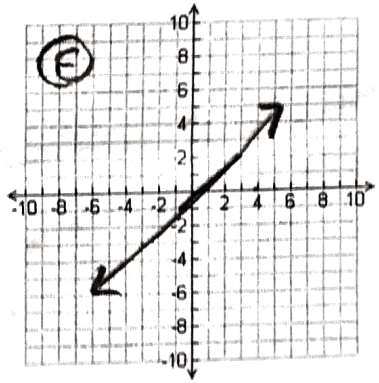
A) A graph that is increasing only, which has an x-intercept of -4 and a y-intercept of 6.
B) A graph that is increasing, then decreasing, has x-intercepts of 5 and -5, and a y-intercept of -9. Not Possible
C) A graph that is increasing, then decreasing, then increasing again, that has x-intercepts of -8, 2, and 7, and a y-intercept of 4.
D) A graph that is increasing, then decreasing and has an x-intercept of 3.
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. Not possible if anything other than zero



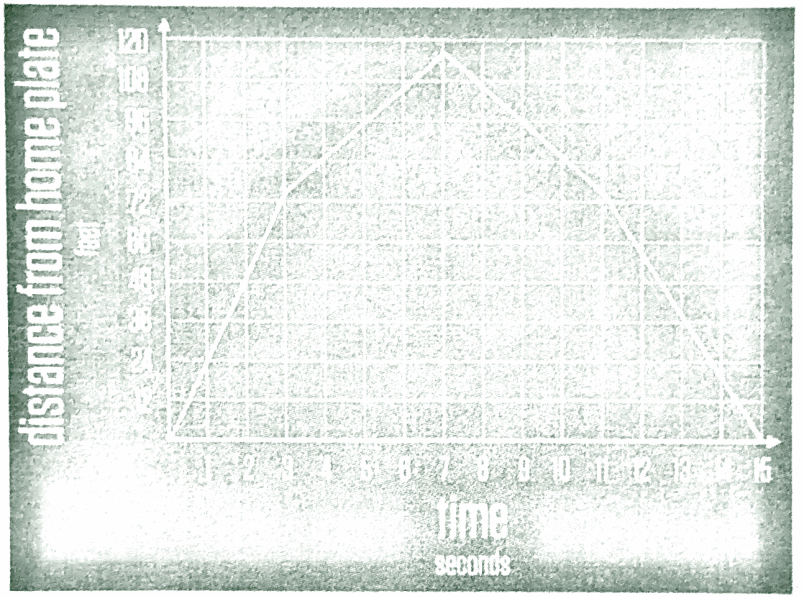








1. Always use x values to describe intervals of increasing/decreasing/constant!
2. Always use < or > signs!



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

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

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

4. When it decreasing? What does it represent?

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

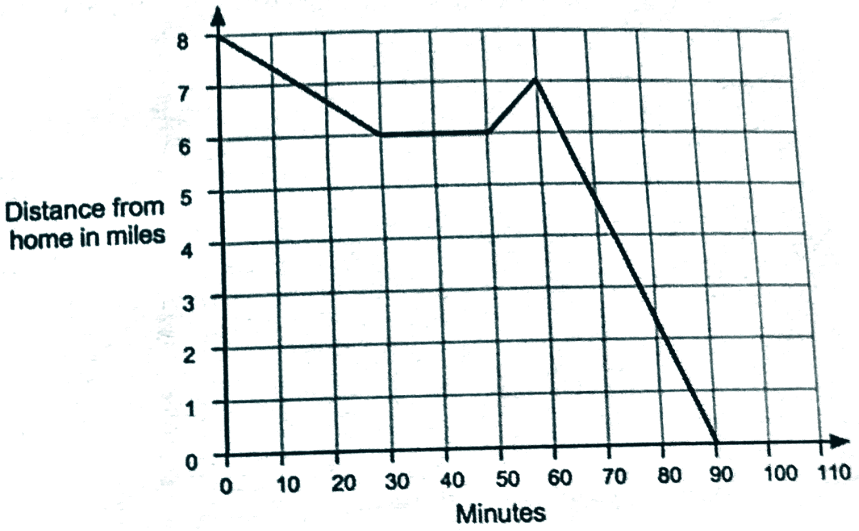
6. What is the domain? What is the range? What do they mean?

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

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?