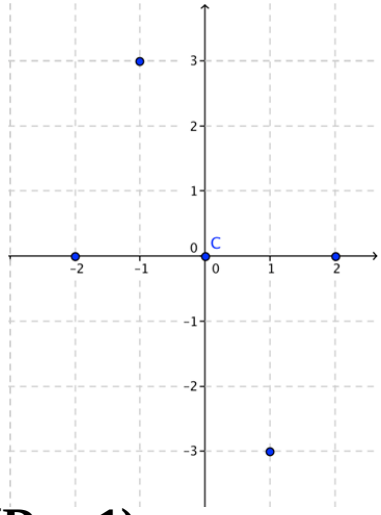
Name:_____ Date:_____

Unit 6 **LESSON 7**

Do Now:

a. Is the accompanying graph a function? Explain why or why not.

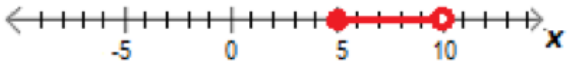


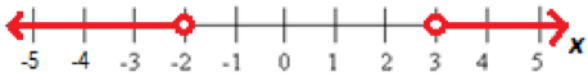
b. State the domain.

c. State the range.

AIM: Domain & Range (Day 1)

Let's review how to write the domain of number lines in set builder notation and interval notation:





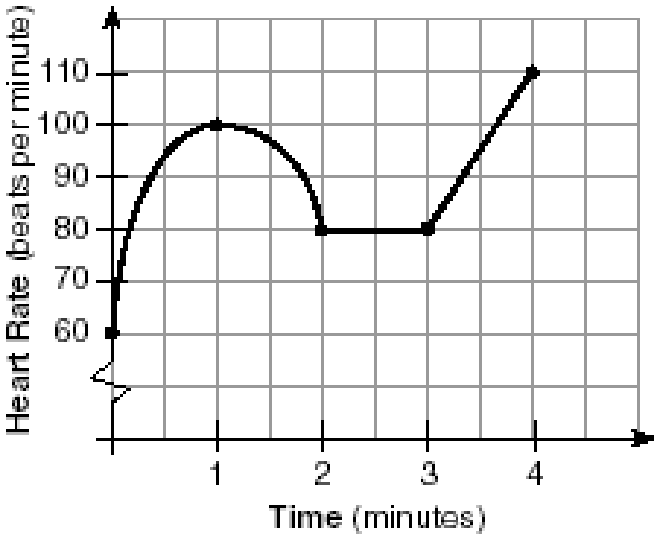
1. The accompanying graph shows the heart rate, in beats per minute, of a jogger during a 4-minute interval. What is the **range** of the jogger's heart rate during this interval?

   (1) 0-4

   (2) 1-4

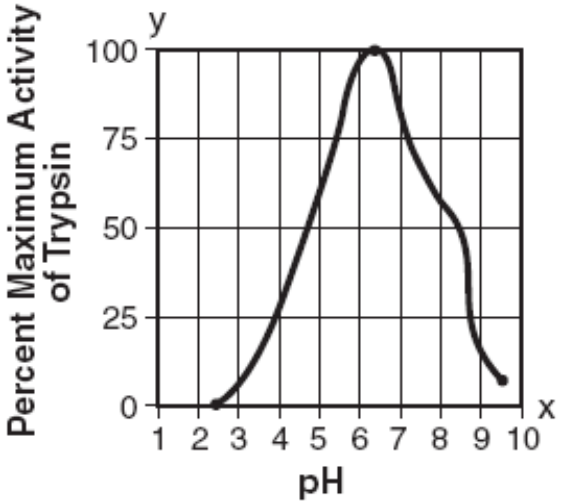
   (3) 0-110

   (4) 60-110



b. Write the **domain** of the jogger's heart rate in set builder notation and interval notation.

2. Data collected during an experiment are shown in the accompanying graph. What is the **range** of this set of data?



(1) $2.5 \le y \le 9.5$

(2) $2.5 \le x \le 9.5$

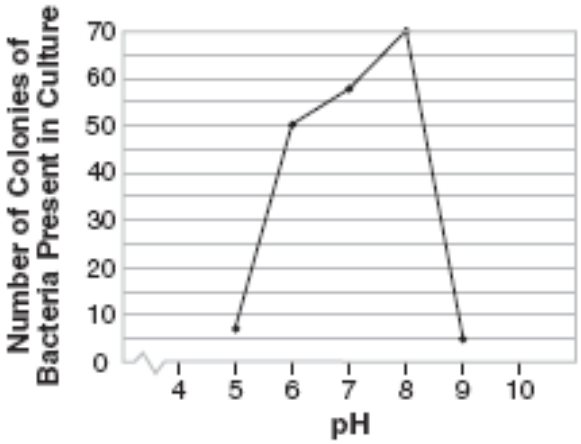
(3) $0 \le y \le 100$

(4) $1 \le x \le 10$

b. Write the **domain** of the data in set builder notation

c. Write the **domain** of the data in set interval notation.

3. The accompanying graph illustrates the presence of a certain strain of bacteria at various pH levels. What is the **range** of this set of data?



(1) $5 \le x \le 9$

(2) $5 \le x \le 70$

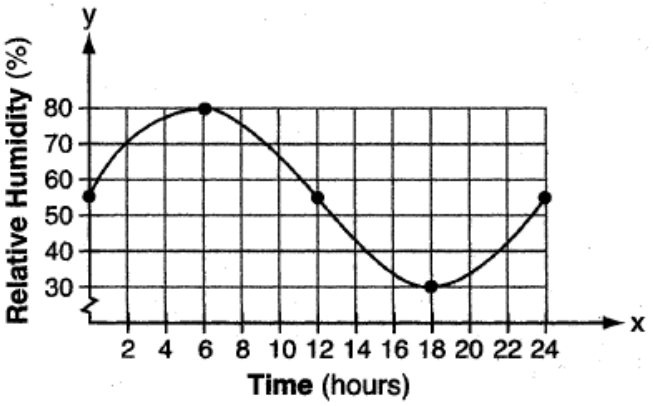
(3) $0 \le y \le 70$

(4) $5 \le y \le 70$

b. Write the **domain** of the data in set builder notation

c. Write the **domain** of the data in set interval notation.

4. A meteorologist drew the accompanying graph to show the changes in relative humidity during a 24-hour period in New York City. What is the **range** of this set of data?



(1) $0 \le y \le 24$

(2) $0 \le x \le 24$

(3) $30 \le y \le 80$

(4) $30 \le x \le 80$

b. Write the **domain** of the data in set builder notation

c. Write the **domain** of the data in set interval notation.

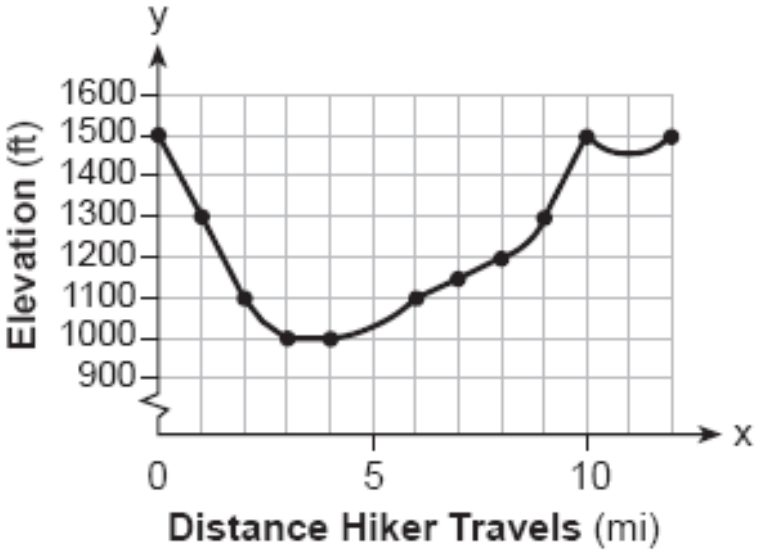
5. The accompanying graph shows the elevation of a certain region in New York State as a hiker travels along a trail. What is the **domain** of this function?

(1) $1{,}000 \le x \le 1{,}500$

(2) $1{,}000 \le y \le 1{,}500$

(3) $0 \le x \le 12$

(4) $0 \le y \le 12$



b. Write the **range** of the function in set builder notation

b. Write the **range** of the function interval notation.

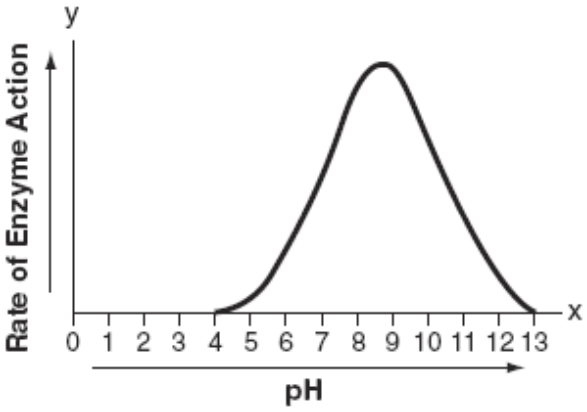
6. The effect of pH on the action of a certain enzyme is shown on the accompanying graph. What is the **domain** of this function?

(1) $4 \le x \le 13$

(2) $4 \le y \le 13$

(3) $x \ge 0$

(4) $y \ge 0$



7. What is the domain of $f(x) = 2^x$?

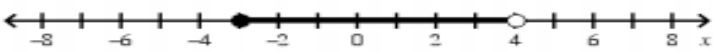
(1) all integers (2) all real numbers (3) $x \ge 0$ (4) $x \le 0$

Name:_____ Date:_____

Unit 6 **LESSON 7**

HW#_____

1. **Write the set in set-builder notation.**



a. $\{x \mid -3 \le x < 4\}$

b. $[-3, 4)$

c. $\{x \mid -3 < x < 4\}$

d. $[-3, 4]$

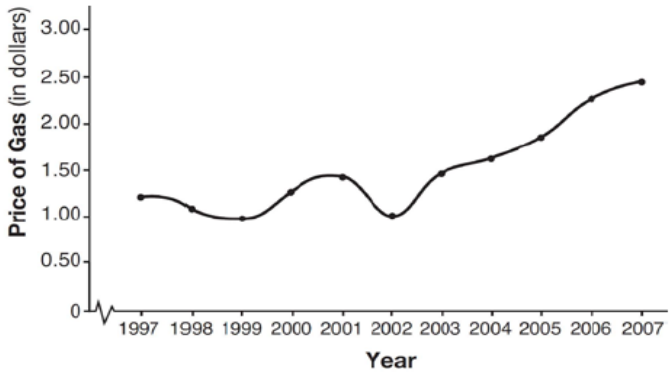
2. Given the following in set-builder notation, express the answer in **interval notation.**

a. $\{x \mid -5 < x \le 7\}$ b $\{x \mid x > -5\}$ c. x is all reals d. $\{x \mid x \le -4 \text{ or } x \ge 6\}$

3. Given the following in interval notation, express the answer in **set-builder notation.**

a. $(-\infty, 4]$ b. $(5, 8)$ c. $[2, 6)$ d. $(-\infty, -3] \cup (4, \infty)$

4 The graph below shows the average price of gasoline, in dollars, for the years 1997 to 2007.

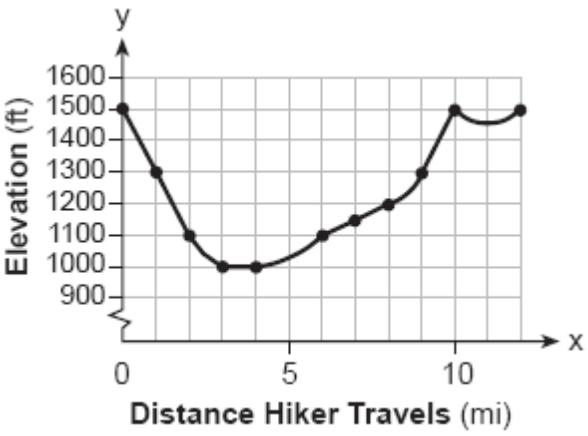


What is the approximate range of this graph?

1) $1997 \le x \le 2007$
2) $1999 \le x \le 2007$
3) $0.97 \le y \le 2.38$
4) $1.27 \le y \le 2.38$

5) Write the **domain** in **set builder notation** for the graph in question #4.

6) The accompanying graph shows the elevation of a certain region in New York State as a hiker travels along a trail.



a. What is the **range** of this function?

(1) $1{,}000 \le x \le 1{,}500$ (3) $0 \le x \le 12$

(2) $1{,}000 \le y \le 1{,}500$ (4) $0 \le y \le 12$

b. Now write the **domain** is **interval notation.**

*****DON'T FORGET TEXTBOOK HW!*****