Name _____ Math-3 _____

HW #1-1

1. Which of the following data sets is linear? Why is the other set not linear?

a.

x	5	6	4	3
y	2.2	2.6	2	0.15

b.

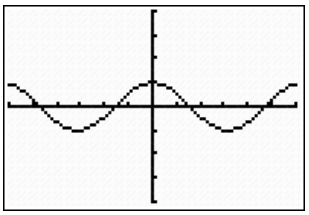
x	2	4	6	8
y	0.15	0.32	0.47	0.64

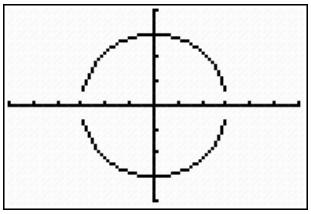
2. What does it mean to say that a relation is "linear"?

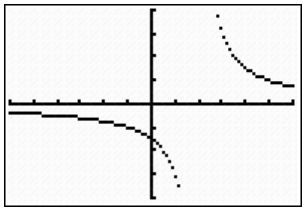
3. What is the equation of the graph that fits through the following data:

x	-12	-6	0	6
y	5	3	1	-1

4. Which of the following are not functions? If it is not a function, explain why it is not.

a. 

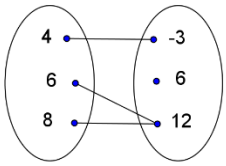
b. 

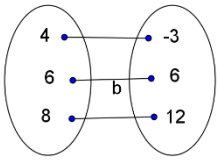
c. 

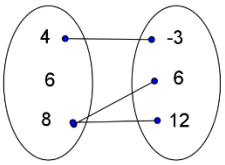
5. Which of the following are not functions (given in "set-builder" notation)? If it is not a function, explain why it is not.

a. (x, y) = { (2, 3), (3, 4), (4, 5) } b. (x, y) = { (-1, 5), (7, 3), (-1, 6) } c. (x, y) = { (-6, 8), (9, 4), (-1, 5) }

6. Which of the following are not functions? If it is not a function, explain why it is not.

a. 

b. 

c. 

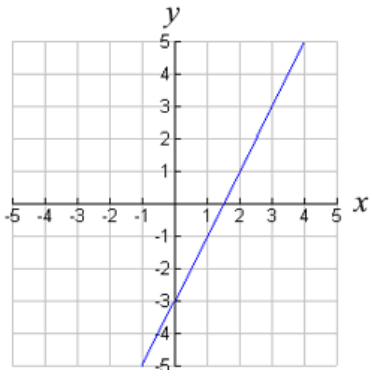
7. What is the equation of the line that fits through the following data?

x	-4	-2	0	2	4	6	8
y	-6	-2	2	6	10	14	18

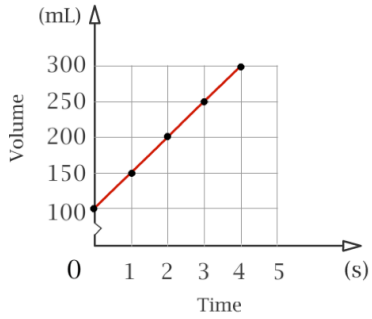
8. What is the equation of the line that fits through the following data?

x	-1	1	3	5	7	9	11
y	8	4	0	-4	-8	-12	-16

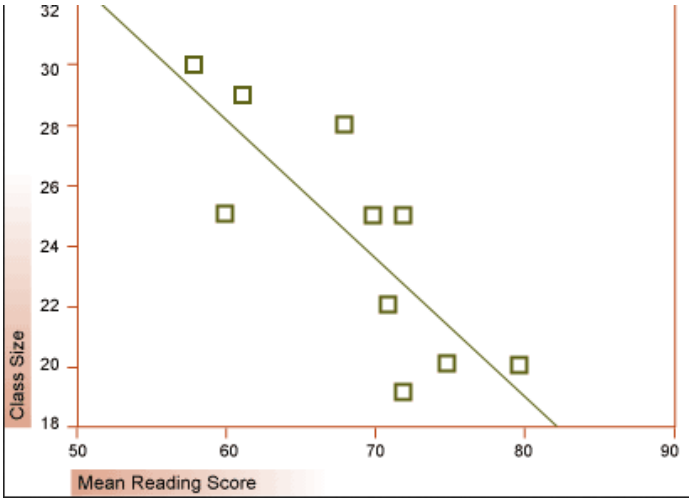
9. Write the equation of the line graphed below.



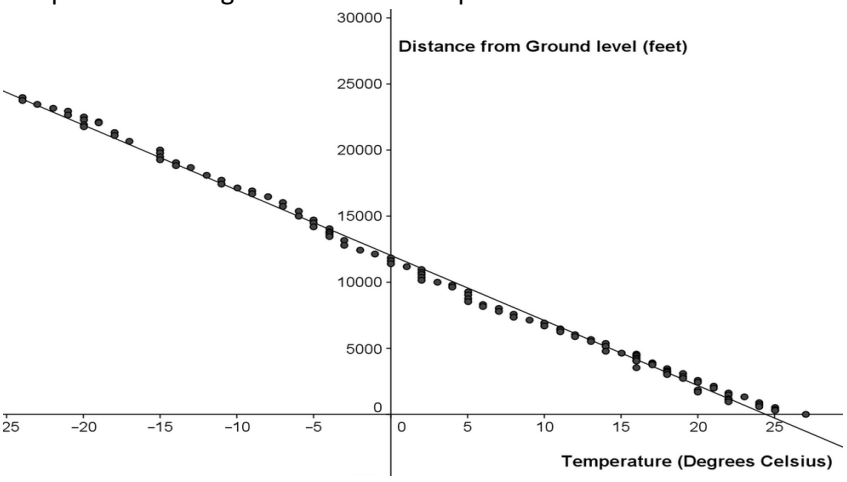
10. (a) write the equation that is represented by the graph
    (b) Is the volume increasing or decreasing with time?
    (c) What does the slope of the graph represent physically?
    (d) What are the "units" of the x and y axes?
    (e) What "quantity" is represented by the x and y axes?
    (f) Using your equation, determine what the volume will be at t=20.



11. (a) Write the equation that gives a "best fit" line through the data. Assume it passes through the point (50, 33).
    (b) Does the mean (average) reading score have a linear correlation with class size?
    (c) Is this correlation negative or positive (this describes the slope)?



12. (a) Write the equation for the relation below.
    (b) What type of correlation exists between air temperature and altitude (positive, negative, or none)?
    (c) What does the slope of the graph represent in the real world?
    (d) Mount Everest rises 8,848 meters (29,029 ft) above sea level. Using your equation, determine the air temperature in degrees Celsius at the peak.



13. (a) For the following data determine the first difference between the data points.
    (b) If both first difference tables are constant, what type of relation will fit through the data?
    (c) If the first difference is not constant, determine the second difference (difference between values of the first difference table).
    (d) The "2nd difference" refers to the difference between values in the "1st difference" table. If the second difference is roughly constant, what type of relation will fit through the data? (graph the points to see the shape)

2nd diff (time)					

1st diff (time)						

Time (sec)	0	1	2	3	4	5	6
Height (ft)	10	244	446	616	754	860	934

1st diff (height)						

2nd diff (height)					