Name:_____ **Section:**_____

Instructor:_____

Free response (10 points)

17. Regression could be used to determine what effect cold weather has on the number of shoppers that visit a mall. The Paradise Mall did a study in which a random sample of days were chosen and the number of shoppers visiting the mall each day was counted. Let x = the noonday temperature (in degrees Fahrenheit) and y = the number of customers visiting the mall.

x	0	10	20	30	40
y	200	300	1000	1500	1700

a. Find the equation of the regression line. Carry out the coefficients to two decimal places.

Answer: $y = 42x + 100$

b. Find the correlation coefficient (use all decimal places available).

Answer: $r = .9759527659$

c. Predict the number of shoppers on a 25° day.

Answer: 1150 shoppers

Name:_____ **Section:**_____

Instructor:_____

Free response (10 points)

18. Using the information below:

a) Graph the data. Make an educated guess as to whether the scenario indicates **a constant function, a linear function, a quadratic function,** or **none of these types of functions**.

b) Create a table of values (by hand – not with the calculator) and, using the method of common differences, verify your guess.

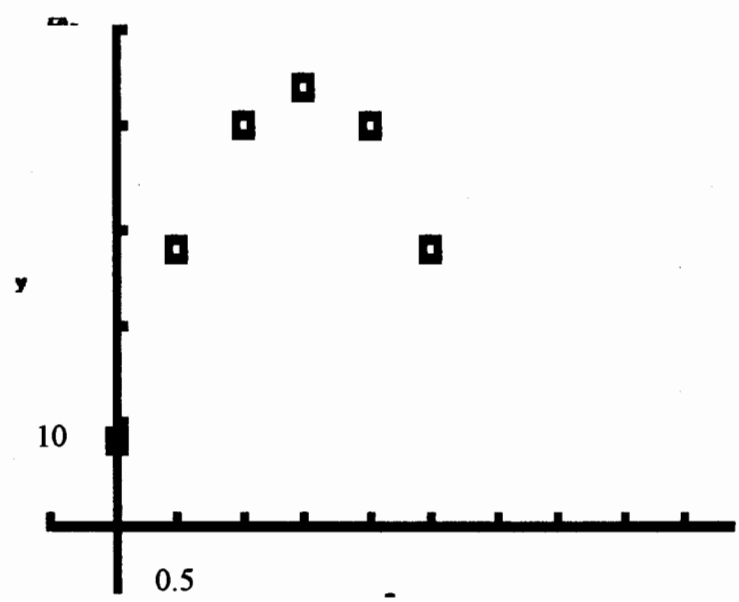
A ball is thrown up in the air and the height of the ball, above the ground, is measured after a given number of seconds. The following are the results of those measurements:

At 0 seconds, the height of the ball is 8 feet.
At 0.5 seconds, the height of the ball is 28 feet.
At 1.0 seconds, the height of the ball is 40 feet.
At 1.5 seconds, the height of the ball is 44 feet.
At 2.0 seconds, the height of the ball is 40 feet.
At 2.5 seconds, the height of the ball is 28 feet.

a.

Seconds	Height	Common Differences (cd)	
		cd	cd of cd
0	8		
0.5	28	20	
1.0	40	12	-8
1.5	44	4	-8
2.0	40	-4	-8
2.5	28	-12	-8

b.



The scenario indicates:

Quadratic Function