Name:	

Date: \_\_\_\_\_

In a study on speed control, it was found that the main reasons for regulations were to make traffic flow more efficient and to minimize the risk of danger. An area that was focused on in the study was the distance required to completely stop a vehicle at various speeds. Use the following table to answer the questions.

MPH	Braking Distance (feet)	
20	20	
30	45	
40	81	
50	133	
60	205	
80	411	

Assume MPH is going to be used to predict stopping distance.

## Part 1: Answer the following questions from the set of data.

- 1. Which of the two variables is the independent variable?
- 2. Which is the dependent variable?
- 3. Construct a scatter plot for the data.

- 4. Is there a linear relationship between the two variables?
- 5. Is the relationship positive or negative?

- 6. Can braking distance be accurately predicted by MPH?
- 7. List some other variables that affect braking distance.
- 8. Compute the value of r.

## Part 2: Answer the following questions using the same set of data as before.

1. Find the linear regression equation.

- 2. What does the slope tell you about MPH and the braking distance? How about the y intercept?
- 3. Find the braking distance when MPH = 45.
- 4. Find the braking distance when MPH = 100.

## Part 3: Answer the following questions. You do not need the previous data set for these questions.

- 1. What is the difference between explained variation and unexplained variation?
- 2. Find the coefficient of determination and nondetermination for the following r values: a. r = .80

*b.* r = 0.42