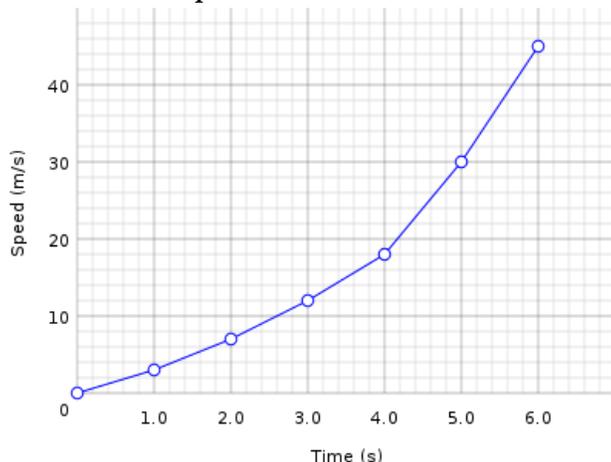


Introduction to Variables and Graphs **Answer Key**

1. Given the graph below, answer the following questions:

Speed of a Car vs. Time



Source: <http://en.wikipedia.org/wiki/File:ScientificGraphSpeedVsTime.svg>

a. What is the independent variable for this graph?

The independent variable is time (in seconds).

b. What is the dependent variable for this graph?

The dependent variable is the speed of a car (in m/s).

c. After 2.5 seconds, how fast is the car traveling?

After 2.5 seconds, the car is traveling 10 m/s.

d. How long does it take the car to reach a speed of 34 m/s?

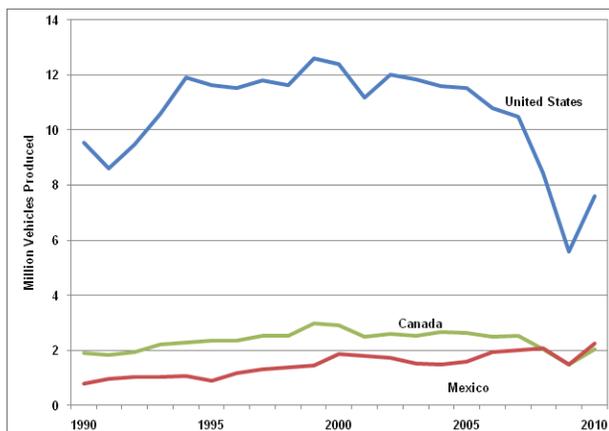
It takes the car approximately 5.2 seconds to reach a speed of 34 m/s.

e. Based on this graph, what is the overall trend in terms of speed as time increases?

As time increases, the speed of the car increases.

2. Given the graph below, answer the following questions:

North American Vehicle Production by Country, 1990-2010



a. What is the independent variable for this graph?

The independent variable is the year (time).

b. What is the dependent variable for this graph?

The dependent variable is the number of vehicles produced (in millions).

f. Write a two-sentence explanation for what the graph is attempting to describe.

The graph describes how many vehicles were produced in North America by countries from the year 1990 to 2010. The graph shows the trends in the number of vehicles produced over that time range.

g. Approximately how many vehicles were produced in Canada in 1999?

In 1999, approximately 3 million vehicles were produced in Canada.

- h. Based on the years provided in the graph, when was the biggest decrease in the number of vehicles produced? Was this the case in all countries shown?

The biggest decrease in vehicle production occurred between 2007 and 2009. This was the case in all three countries shown, but was the most dramatic for the U.S.

- c. Write a two-sentence explanation for what the trend of the line is showing, given the two variables.

The trend of the line shows the relationship between the height and the weight of an individual. The visible trend is that as height increases, weight also tends to increase.

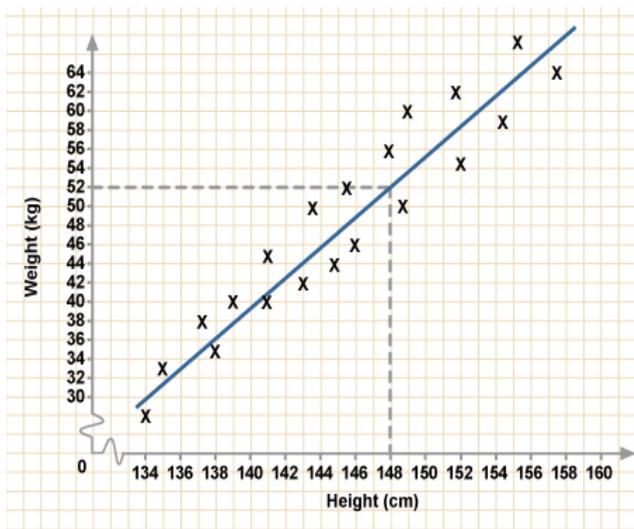
- d. Provide at least three data points on the graph.

Example answer: Three data points include: (138, 35), (148, 56) and (149, 60)

- e. Do you think that the blue line appropriately describes the relationship between the two variables? Explain.

Example answer: Yes, I think the blue line does appropriately describe the relationship between the two variables. All the data points appear relatively close to the line, and the data points also appear approximately evenly spread above and below the line.

3. The graph below shows the relationships between the heights of individuals (in centimeters) and their respective weights (in kilograms). Data points are shown by “X” and the blue line represents a linear fit for the data.



- a. What is the independent variable for this graph?

The independent variable for this graph is height (in cm).

- b. What is the dependent variable for this graph?

The dependent variable for this graph is weight (in kg).