

# Plotting Points, Interpreting Data

The South Carolina Statistical Abstract reports the rate of Aggravated Assault (per 10,000 residents) as follows:

YEAR	1985	1986	1987	1988	1989	1990
AGGRAVATED ASSAULTS PER 10 000 RESIDENTS	48.8	52.7	53.1	57.3	64.2	76.7

**I. Examine** the data and **describe** the trend in words:

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**II. Construct a plot of the data.** NOTE: Since we are considering how the rate of Aggravated Assault in South Carolina changes over time, we use time as our independent variable, or x-value, and plot it on the horizontal axis; we use Aggravated Assault Rate as our dependent variable, or y-value, and plot it on the vertical axis.



Have you clearly labeled both axes so that someone picking up your graph would understand what the points represent, without having to read an accompanying article?

**III.** Describe your graph in words: \_\_\_\_\_

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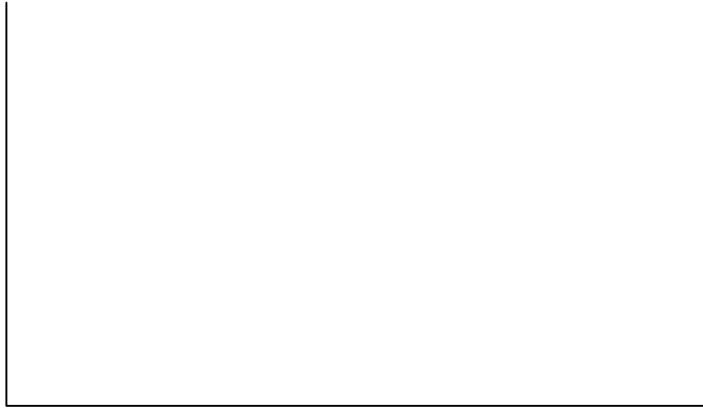
If you had to write a one- or two-sentence caption for this graph in a news story about crime in South Carolina, what would you write?

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**IV.** Assume that the population of South Carolina was 3.1 million in 1980, and grew at a steady 2.5% rate throughout the 80's. (a) Find the S.C. population for each of the years in the above table, and (b) use those population values to calculate the numbers of aggravated assaults in S.C. during those years. Organize your information in a meaningful format, and construct a plot of your new data.



**V.** Describe this graph in words, and write a new caption. \_\_\_\_\_

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**VI.** Recall from algebra that the slope of a line through two points can be computed as the change in the dependent variable (y-value) divided by the change in the independent variable (x-value) between the two points. In the context of this activity, the slope of the line through two points on your graph is the average annual rate of increase in the number of aggravated assaults over the time interval described by the two points. Find the average annual rate of increase in the number of aggravated assaults between 1986 and 1989: \_\_\_\_\_ .

**VII.** The two graphs constructed in this activity communicate somewhat different information. Which graph gives, in your opinion, the most useful or compelling information? Give reason(s) for your choice. Continue on the back of this page if necessary.

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