HOMEWORK 1   **Due: next class   1/27**
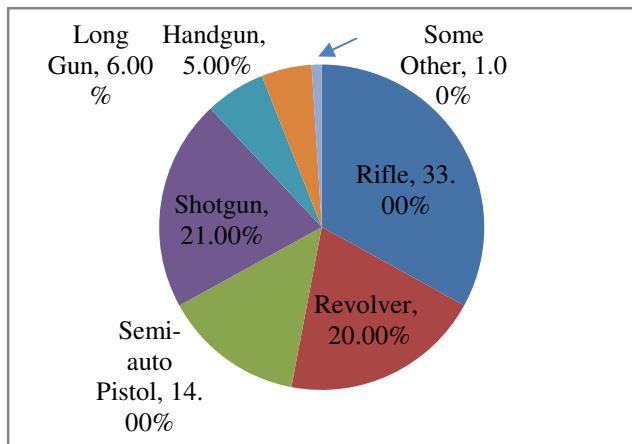
1. Explain how a sample is related to a population.

2. a.   Explain what is meant by the *distribution* of a categorical variable.

   b.   List two ways that this distribution can be displayed visually.

3. For each of the following variables, indicate with Q or C whether it is a quantitative variable or a categorical variable.
   a. the color of a M&M candy
   b. the weight of an airplane
   c. the life expectancy of a nation
   d. how many miles a person walks in one day
   e. the age of a mother when her first baby born
   f. whether or not a student eats breakfast or doesn't
   g. the length of a snake
   h. whether or not a car has automatic transmission or manual transmission/stick shift
   i. the number of calories in a pint vanilla ice cream
   j. whether or not a baby tests HIV-positive
   k. the running time of a Tom Cruise movie
   l. whether or not a state's name consists of one word
   m. the diameter of a pizza
   n. the number of dogs an animal shelter has
   o. the height of a sequoia tree
   p. the color of a bottle of wine
   q. the number of books a person owns
   r. the race of a person

4.   Consider the following pie chart:

Long Gun, 6.00%   Handgun, 5.00%   Some Other, 1.00%
Rifle, 33.00%
Shotgun, 21.00%
Revolver, 20.00%
Semi-auto Pistol, 14.00%

a. What is the variable described in the pie chart?

b. Summarize what the pie chart shows.

5. Consider the following bar graph: Pressure from schoolwork

number of students
amount of pressure
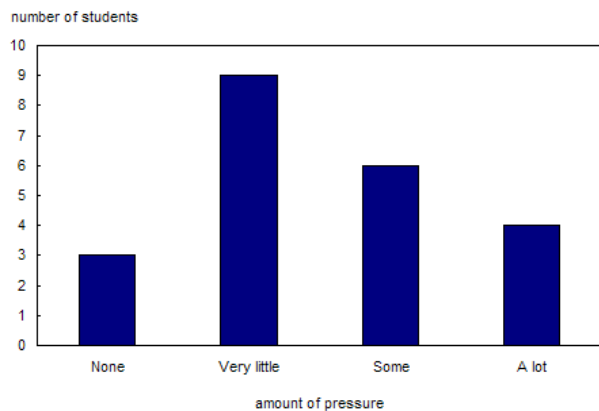
a. What is the variable described in the bar graph?

b. What percent of students feel no pressure from schoolwork?

6. In 2007, 5488 people were killed while working. Here is a breakdown of causes: transportation: 2234; contact with objects or equipment: 916; assaults or violent acts: 839; falls: 835; exposure to harmful substances or harmful environment: 488; fires or explosions:151; others: 25. (The data are from the Bureau of Labor Statistics.) Construct a bar graph.

7. The graph below came from the USA Today Snapshots: Commuting Time.
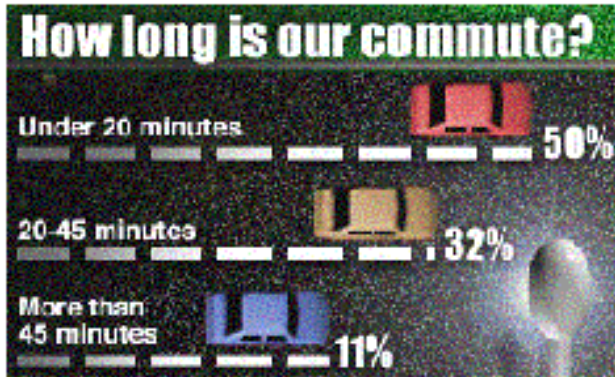
List two things that are wrong with this graph.

8. Create a **stemplot** for the time (in minutes) students in your class spend for a typical shower using the class data sheet (question 14 on the questionnaire).

9. The dotplot below shows the number of hurricanes that happened each year from 1944 through 2000 as reported by *Science* magazine. Describe the distribution.
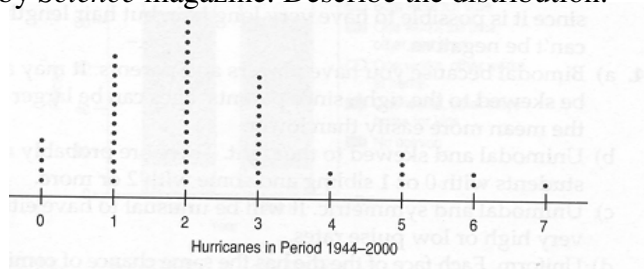
10. Would you expect the distributions of these variables to be **uniform**, **unimodal**, or **bimodal**? **Symmetric** or **skewed**?

   a. Number of times each face of a die shows in 200 tosses

   b. Weights of newborn babies born in a particular hospital over the course of a year

   c. The scores on a very easy statistics quiz

   d. Number of siblings of the students in this class

11. A class of students recorded the number of years their families had each lived in their town. Here are two graphs that the students drew to summarize the data. Which graph gives a more accurate representation of the data? Why?
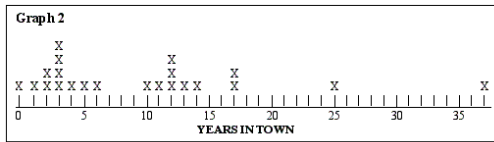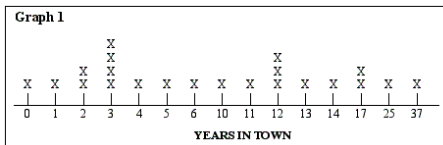
12. For the graph below, of heights of singers in a large chorus, please write a complete description of the histogram. Be sure to comment on all the important features.