Introduction to Statistics   **Name** _____

1.   Classify each variable as discrete (d) or continuous (c).

        _____ (a) Number of doughnuts sold each day by Doughnut Heaven

        _____ (b) Water temperature of 6 swimming pools in Pittsburgh, PA on a given day

        _____ (c) Lifetime (in hours) of 12 flashlight batteries

        _____ (d) Number of DVDs rented each day by a video store

        _____ (e) Capacity (in gallons) of six reservoirs in Jefferson County

2.   Give the (lower and upper) boundaries of each measurement.

        (a) 42 miles   _____

        (b) 1.6 mL   _____

        (c) 5.36 oz   _____

        (d) 18.5 kg   _____

        (e) 40 ˚F   _____

3.   Classify each sampling technique as random (R), systematic (S), stratified (T), or
        convenience (C).

        _____ (a) In a large school district, all teachers from two buildings are interviewed to
                    determine whether they (collectively) believe that students have less
                    homework to do now than in previous years.

        _____ (b) Every 7th customer entering a shopping mall is asked to select her or his
                    favorite store.

        _____ (c) Nursing supervisors are selected using random numbers (associated with their
                    ID) in order to determine annual salaries.

        _____ (d) Every 100th hamburger manufactured is checked to determine its fat content.

   _____ (e) Mail carriers of a large city are divided into four groups according to gender
                    (male or female) and according to whether they walk or ride on their routes.
                    Then 10 are selected from each group and interviewed. The goal is to compare
                    the four groups on whether they have been bitten by a dog in the last year.

4. During the 1998 baseball season, Mark McGwire and Sammy Sosa both broke Roger Maris's home run record of 61. The distances in feet for each home run follow. Construct a frequency distribution for each player, using 8 classes. For comparison purposes. use a common set of classes for both players. Source: *USA Today*

McGwire				Sosa			
306	370	370	430	371	350	430	420
420	340	460	410	430	434	370	420
440	410	380	360	440	410	420	460
350	527	380	550	400	430	410	370
478	420	390	420	370	410	380	340
425	370	480	390	350	420	410	415
430	388	423	410	430	380	380	366
360	410	450	350	500	380	390	400
450	430	461	430	364	430	450	440
470	440	400	390	365	420	350	420
510	430	450	452	400	380	380	400
420	380	470	398	370	420	360	368
409	385	369	460	430	433	388	440
390	510	500	450	414	482	364	370
470	430	458	380	400	405	433	390
430	341	385	410	480	480	434	344
420	380	400	440	410	420		
377	370						

Home run distance (ft)	McGwire's frequency	Sosa's frequency
350 - 399		
300 - 349		

5. For the data given in #4, construct a histogram (using boundaries or midpoints) for the home run distances for each player and compare them.
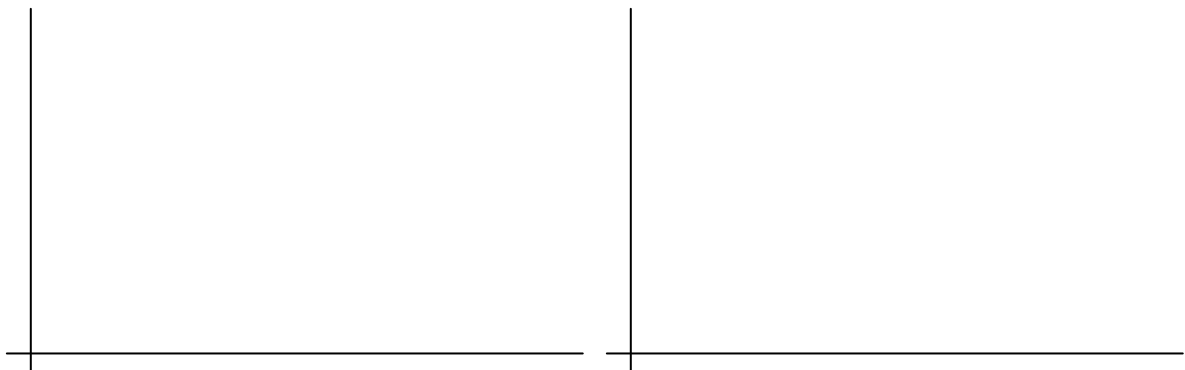
6.   Twelve major earthquakes had Richter scale magnitudes shown below.
            7.0, 6.2, 7.7, 8.0, 6.4, 6.2, 7.2, 5.4, 6.4, 6.5, 7.2, 5.4

        Find the:
        (a) Mean   (b) Median   (c) Mode   (d) Midrange
                                    (showing the sort above)

        (e) Which would you consider the best measure of "center"? Explain.

7.   The normal daily high temperatures (in degrees Fahrenheit) in January for 10 randomly
        selected cities are show below.

                50, 37, 29, 54, 30, 61, 47, 38, 34, 61

        The normal monthly precipitation (in inches) for these same 10 cities is listed below.

   4.8, 2.6, 1.5, 1.8, 1.8, 3.3, 5.1, 1.1, 1.8, 2.5

        For both data sets, find the

        (a) Mean   (b) Standard deviation

8.   The prices of 14 different randomly selected 35-mm compact cameras are as follows:
        $189, $225, $129, $175, $299, $140, $215, $299, $89, $99, $149, $219, $120, and $144.

        (a) Calculate the range.   (b) Calculate the interquartile range.


        (c) Construct a box plot, showing the process. Clearly label each statistic in the 5-number
            summary. Use a number line to draw the box plot to scale.
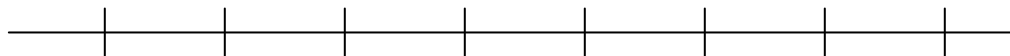
9.   The amount of protein (in grams) for a variety of fast-food sandwiches is reported in the
        chart below. Use the interquartile range approach (Q_1 – 1.5 x IQR, Q_3 + 1.5 x IQR) to
        find whether any of the amounts are outliers. Show your reasoning, and list any outliers.

23	25	20	23	44	28	35	24	29	29
25	15	18	36	19	32	20	16	34	16

10.   Refer to the following broken line graph. [Source: U.S. Census Bureau]

U.S. Population Growth
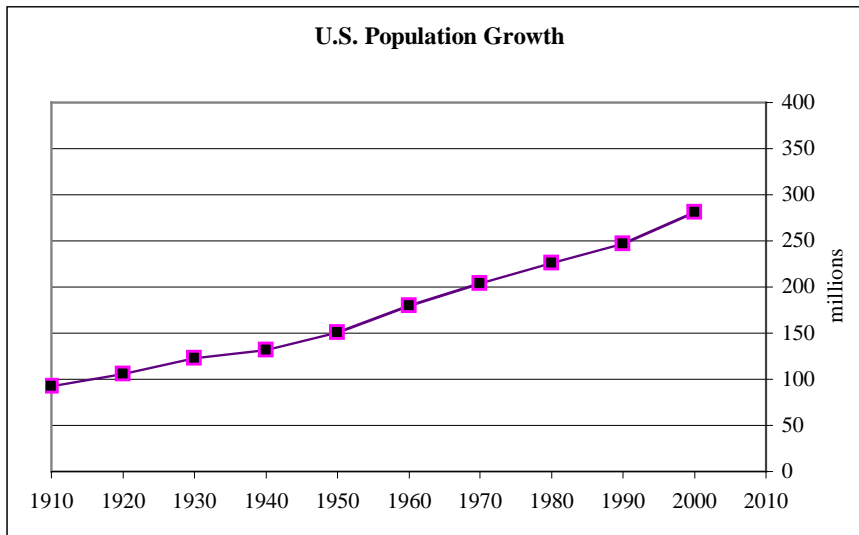
(a) Describe in a sentence the general trend in the graph.

(b) Choose the range of years that includes the year when the U.S. population first went over 250 million.

    1920-1940   1940-1960   1960-1980   1980-2000

(c) During what year were you born? _____ Use the graph to estimate the U.S. population in the year of your birth.

11.   In a recent year, City of Tifton Operations included 7 general funds, 6 of which are largely self-supporting. The total budget is approximately $27.2 million for this year.

        Approximately how much money is budgeted for water?

City of Tifton (Recent Fiscal Year Budget)

Telecommunications 8%

Gas 25%

Water 10%

Sewer, Landfill & Sanitation 24%

General 33%
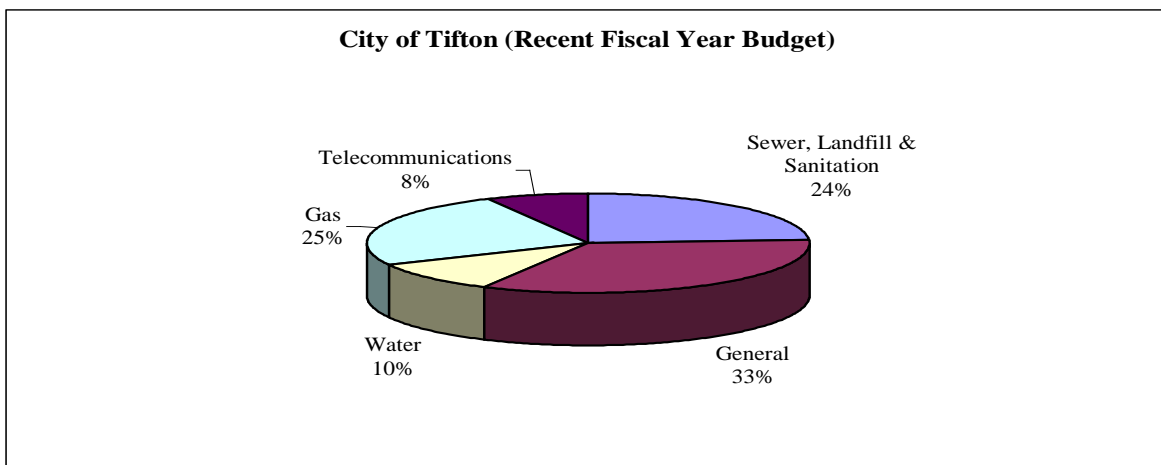
Do your best! Rise to the challenge! Live and learn!