

Literary scholars sometimes use the distribution of word lengths in a work as a test of authenticity. Here are the words lengths for the first 25 words on a randomly-selected page from Toni Morrison’s *Song of Solomon*.

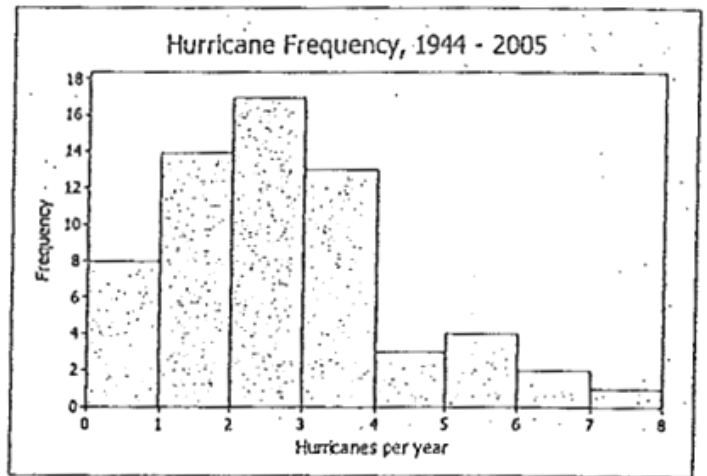
2 3 4 10 2 11 2 8 4 3 7 2 7
 5 3 6 4 4 2 5 8 2 3 4 4

#1. Make a dotplot of these data.

#2. Find the mean, standard deviation, and 5-number summary (min, Q1, median, Q3, max).

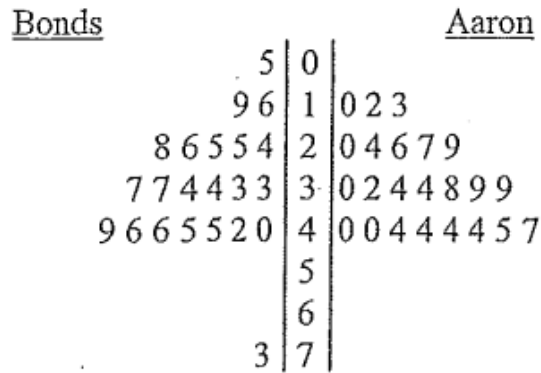
#3. Describe the overall pattern of the distribution and any possible outliers.

#4. The histogram shows the number of major hurricanes that reached the East Coast of the United States from 1944 to 2005. Describe the shape, center, and spread of the distribution.



On August 7, 2007 Barry Bonds hit his 756th home run, breaking the all-time career home run record, formerly held by Hank Aaron. Does that make Bonds a better home run hitter than Aaron? Let's compare their annual home run production over their entire careers. Below is a side-by-side stemplot. (Bonds played between 1986 and 2007. Aaron played between 1954 and 1978.)

Number of Home Runs per Year



Key: 1|4 = 14 home runs

#5. Use the plot to write a few sentences comparing Bonds and Aaron as home run hitters.

Hallux abducto valgus (call it HAV) is a deformation of the big toe that is not common among young people and often requires surgery. Doctors used X-rays to measure the angle (in degrees) of deformity in 38 consecutive patients under the age of 21 who came to a medical center for surgery to correct HAV. The higher the angle measure the more severe the deformity. Here are the data.

13 14 16 16 17 18 18 20 20 20 21 21 21 21 22 23 25 25 25
25 26 26 26 26 28 28 28 30 30 30 31 32 32 32 34 38 38 50

#6. Make a histogram of these data. Choose an appropriate bin width and scale, and label each axis.

#7. Find the mean, standard deviation, and 5-number summary (min, Q1, median, Q3, max).

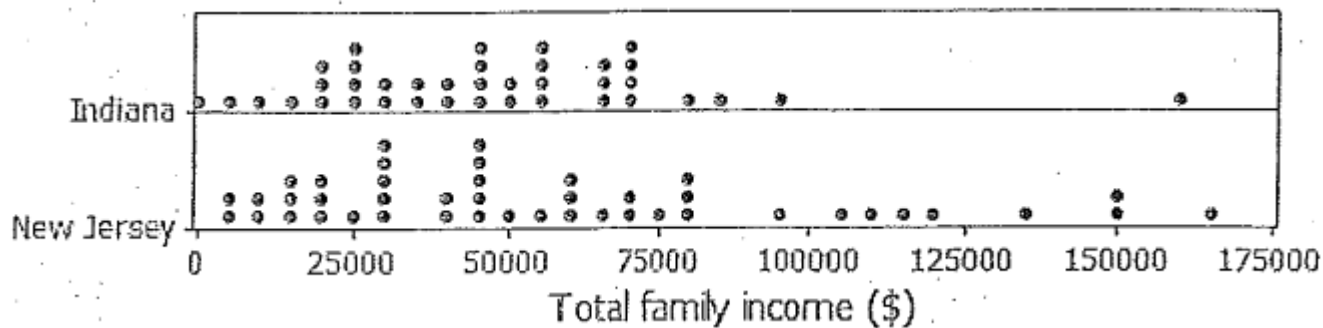
#8. Write a brief discussion of the distribution of the angle of deformity among young patients needing surgery for this condition.

Below are the resting heart rates of 26 ninth-grade biology students.

61 78 77 81 48 75 70 77 70 76 86 55 65
 60 63 79 62 71 72 74 74 64 66 71 66 68

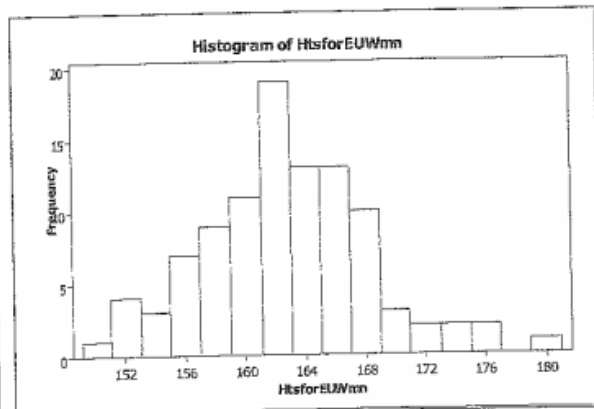
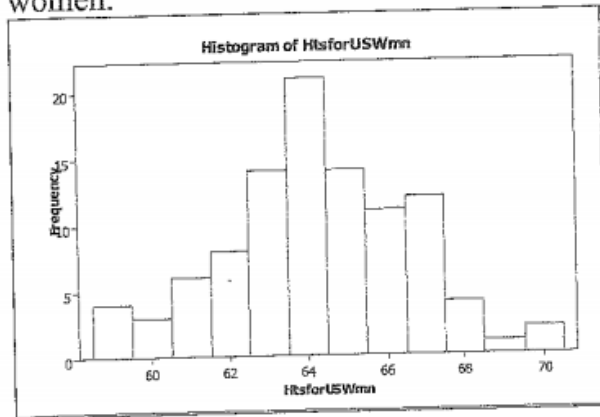
#9. Make a stemplot of these data with split stems.

#10. The dotplots below show the total family income of randomly-chosen individual from Indiana (38 individuals) and New Jersey (44 individuals). Write a few sentences comparing the distribution of total family incomes in these two samples.



Chapter 4 Practice Quiz

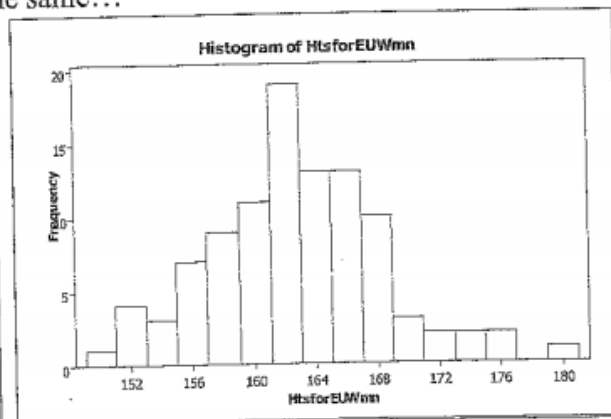
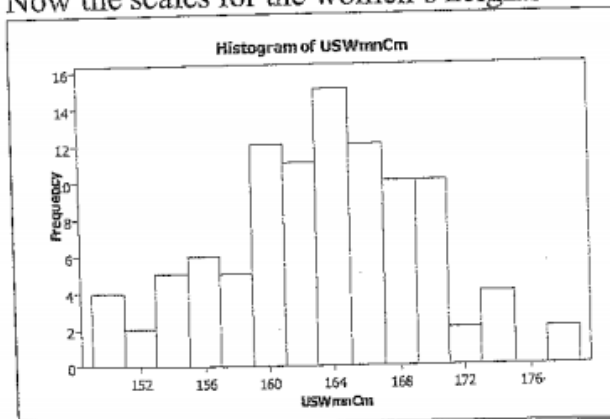
The following are histograms for the heights of 100 US women and the heights of 100 European women:



Note that the scales for the women's heights are very different, and thus it makes it hard to make a comparison between the heights of these women in the US and in Europe.

1. What might the cause of this difference in scale be?

Now the scales for the women's heights are the same...



2. Compare the two distributions of the women's heights. Be sure to talk about shape, center, and spread.
3. While the scales for heights the same in the second set of histograms are, there is still something that could be improved so that we could compare these two distributions better. Identify this improvement and explain why it would be better.