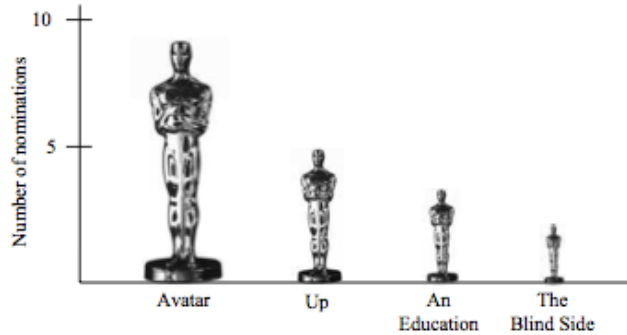


AP Statistics Chapter 1 Review

1. Below is a graph showing the total number of Oscar nominations for the four films that had PG or PG-13 ratings. What's wrong with the way the information is presented in this graph?



2. A research study asked children which of four different emotions they associated with the color red. The response and gender of each child are given in the following table.

	Joy	Happiness	Love	Anger
Male	28	20	40	18
Female	61	25	40	60

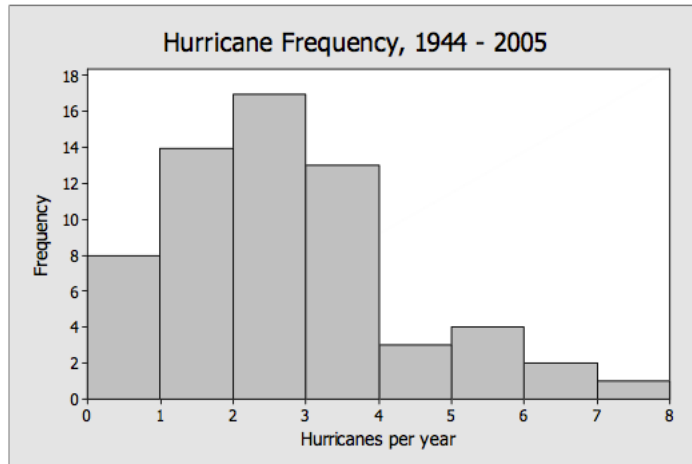
Use the data in this table to discuss the relationship between the emotions children associate with the color red and gender. Use the techniques and language you have learned in this chapter to support your conclusions.

3. You suspect that there is a relationship between teenagers' preference in movies and their preference in pizza. You ask 110 students at your school to choose between three movies and three pizza types. Here are your results.

	Pepperoni	Sausage	Mushroom
Men in Black	20	15	10
The Big Lebowski	8	16	11
Monsters, Inc.	15	2	13

- (a) Find the conditional distribution of pizza preference for each movie preference, in percents.
- (b) Sketch a segmented bar graph for the three conditional distributions in (a)
- (c) Write a brief description of what the conditional distributions in (a) and (b) tell you about the relationship between these variables.

4. The histogram below 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.



5. Below are the resting heart rates of 25 ninth-grade biology students.

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

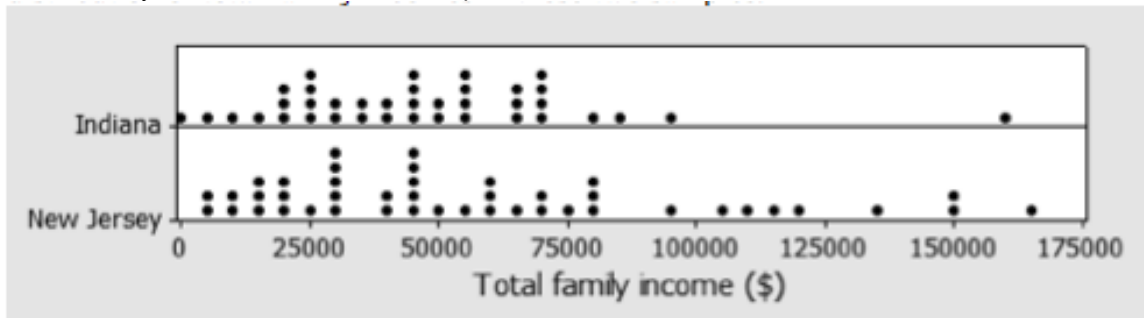
Make a stemplot of these data with split stems.

6. Halluz 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 36 consecutive patients under the age of 21 who came to a medical center for the 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 31
 32 32 34 38 38 50

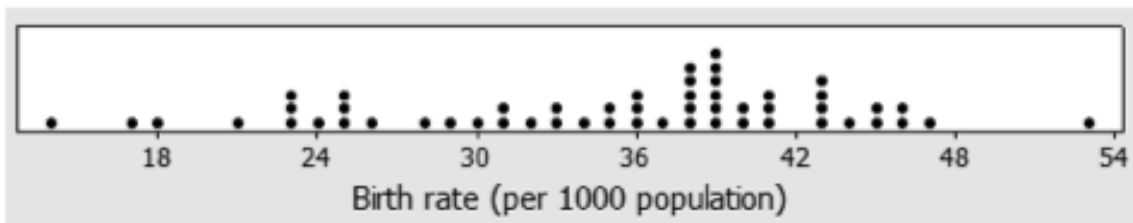
Make a histogram of these data. Choose a bin width of 6 and label each axis.

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



8. One of the important factors in determining population growth rates is the birth rate per 1000 individuals in a population. Below are the birthrates per 1000 individuals for 54 African Nations from a 2009 Population Reference Bureau report. The data is provided in ascending order, along with a dotplot.

14	23	25	31	34	36	38	39	41	43	46
17	23	26	31	35	37	38	39	41	43	46
18	24	28	32	35	38	39	39	41	44	47
21	25	29	33	36	38	39	40	43	45	53
23	25	30	33	36	38	39	40	43	45	



(a) What measures would you use to describe the center and spread of these data? Justify your answer.

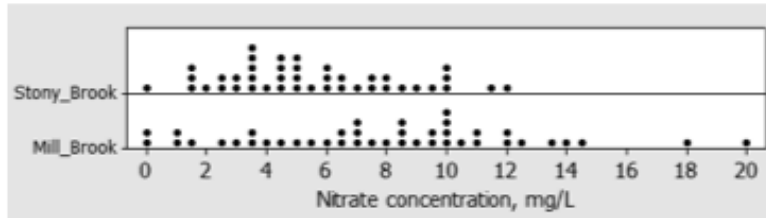
(b) Find the five-number summary for these data.

(c) Are there any outliers? Justify your answer.

(d) How can you tell *without doing any calculations*, that the median of these data is larger than the mean?

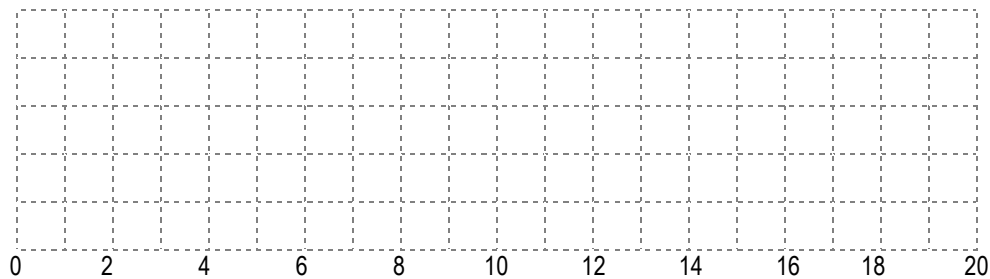
(e) The average birthrate for the 54 African Nations is 34.91 with a standard deviation of 8.57. If we add a 55th Nation to our data set that has a birth rate of 32, what will happen to the standard deviation (increase, decrease, or stay the same)?

9. Nitrates are organic compounds that are a substantial component of agricultural fertilizers. When those fertilizers run off into streams, the nitrates can have a toxic effect on animals that live in those streams. An ecologist studying nitrate pollution in two streams collects data on nitrate concentrations at 42 places on Stony Brook and 42 places on Mill Brook. His results are given in the dotplots and computer output below.



Variable	Total Count	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Stony Brook	42	5.524	0.451	2.922	0.000	3.500	5.000	7.500	12.000
Mill Brook	42	7.929	0.711	4.607	0.000	4.500	8.250	10.500	20.000

(a) Draw parallel box plots of these two distributions. Be sure to label the plots and plot outliers separately if there are any.

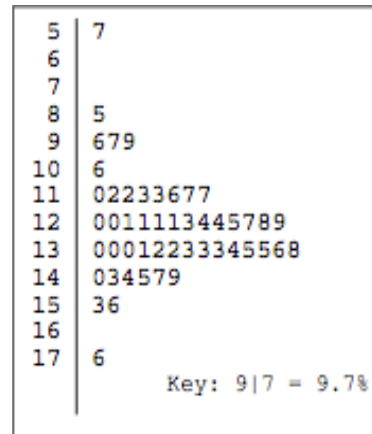


(b) Compare the nitrate concentrations in Stony Brook and Mill Brook.

MULTIPLE CHOICE

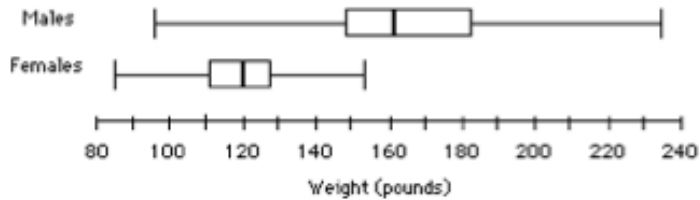
1. The population of the US is aging, though less rapidly than in other developing countries. At right is a stemplot of the percents of residents aged 65 and older in each of the 50 states, according to the 2000 census. There are two outliers; Alaska has the lowest percent of older residents, and Florida has the highest. What is the percent for Florida?

- (a) 13.8 %
- (b) 57%
- (c) 176 %
- (d) 17.6 %
- (e) 5.7%



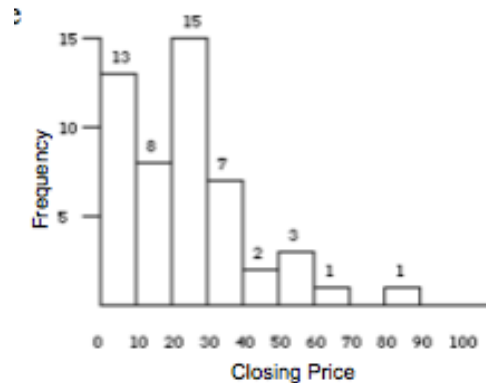
2. The weights of the male and female students in a class are summarized in the following boxplots:

Which of the following is NOT correct?



- (a) About 50% of the male students have weights between 150 and 185 pounds
- (b) About 25% of female students have weights above 130 pounds.
- (c) The median weight of male students is about 162 ponds.
- (d) The mean weight of female students is about 120 pounds.
- (e) The male students have less variability than the female students.

3. The following is a histogram showing the actual frequency of the closing prices of a particular stock on the New York Stock Exchange over a 50-day period. The class that contains the third quartile is



- (a) 10-20
- (b) 20-30
- (c) 30-40
- (d) 40-50
- (e) 50-60

4. For the data in the previous problem, which measures of center and spread would be most appropriate to use?

- (a) Mean and standard deviation
- (b) Mean and interquartile range
- (c) Mean and range
- (d) Median and interquartile range