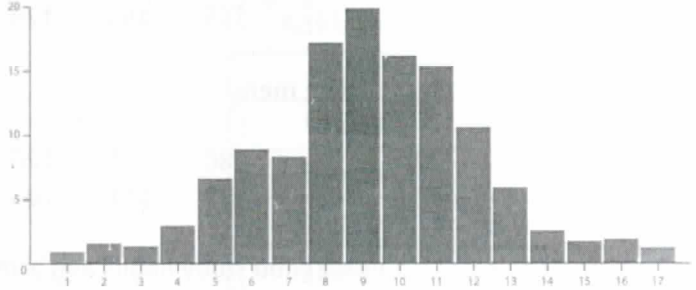


1. Which of the following is the best description of the shape of the distribution?

- A. Roughly symmetric and unimodal
- B. Roughly symmetric and bimodal
- C. Skewed to the left
- D. Skewed to the right



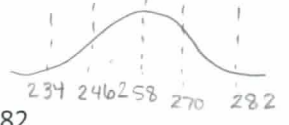
2. If a distribution is skewed to the right with no outliers,

- A. mean < median.
- B. mean ≈ median.
- C. mean = median.
- D. mean > median.



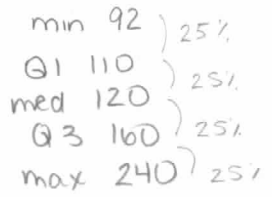
3. A small company estimating its photocopying expenses finds that the mean number of copies made per day for the past 12 months is 258 copies per day with a standard deviation of 12 copies per day. Which of the following is a correct interpretation of standard deviation?

- A. The number of copies made per day was always between 234 and 282.
- B. About 95% of the time, the number of copies made per day was between 234 and 282.
- C. The difference between the mean number of copies made per day and the median number of copies made per day was 24.
- D. On average, the number of copies made each day was about 24 copies per day away from the mean, 258.



4. A medical researcher collects health data on many women in each of several countries. One of the variables measured for each woman in the study is her weight in pounds. The following list gives the five-number summary for the weights of adult women in one of the countries.

Country A: 92, 110, 120, 160, 240



About what percent of Country A women weigh between 110 and 240 pounds?

75%

For each situation, what sampling method is used? Does the sample have bias?

5. A political candidate wants to know what percent of his constituents favor a Referendum on an upcoming ballot election. His staff asks each person who comes into the candidate's office for three days whether they support the Referendum. convenience; yes

6. The manager of a grocery store wants to determine what percent of shoppers use store coupons. He asks every tenth shopper who passes through the store's door for the next week if he or she intends to use a store coupon on their visit. systematic; no

7. Here are the scores on the Survey of Study Habits and Attitudes (SSHA) for 18 first-year college **women**:

154 109 137 115 152 140 154 178 101
 103 126 126 137 165 165 129 200 148

and for 18 first-year college **men**:

108 140 114 91 180 115 126 92 146
 109 132 75 88 113 151 70 115 187

Note: High scores indicate good study habits and attitudes toward learning.

a. Find the five number summary for both the women and men.

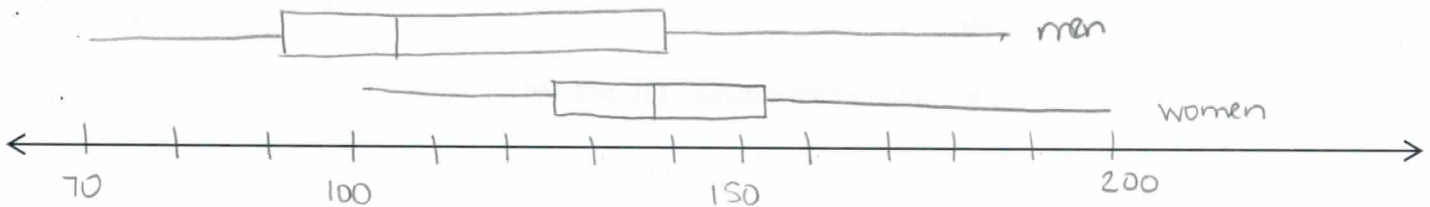
First-year college **women**

Min	101
Q_1	126
Median	138.5
Q_3	154
Max	200

First-year college **men**

Min	70
Q_1	92
Median	114.5
Q_3	140
Max	187

b. Construct boxplots of the data sets on the same number line.



8. **Error Analysis:** Using the data set $\{4, 2, 9, 8, 5, 5, 3, 9, 1, 1, 9, 3\}$, a student says the median is 4. What is the correct median?

1, 1, 2, 3, 3, 4, 5, 5, 8, 9, 9, 9

median 4.5

Use the chart at the right for Exercises 9–11.

Fundraising at Smithburg

Club	2006–2007	2007–2008
Adventure	\$500	\$600
Car	\$250	\$250
Chess	\$100	\$120
Drama	\$1500	\$1400
Ecology	\$475	\$300
Film	\$150	\$250
Service	\$2200	\$4500
Spirit	\$1000	\$1500

9. Find the mean amount of money raised for each year.

$$\frac{2006-07}{\$ 771.88}$$

$$\frac{2007-08}{\$ 1115}$$

10. Find the population standard deviation for each year.

$$\sigma_x = 697.70$$

$$\sigma_x = 1374.03$$

11. Use the standard deviation for each year to describe how school fundraising varied from 2006–2007 to 2007–2008.

Fundraising was more consistent between clubs in 2006–07.

13. The mean score on a quiz is 82 out of 100 possible points and the standard deviation is 4.

a) Estimate the percent of scores that were 85 or higher. $(85, 1E99, 82, 4) = 22.67\%$

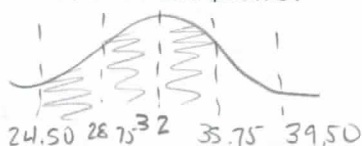
b) Find the z-score for a test score of 62. $z = \frac{62-82}{4} = -5$

- c) Which test score is more unusual? A score of 62 or a score of 100?

$$z = \frac{100-82}{4} = 4.5$$

A 62 because its z-score is further out.

14. The amount of money spent per person at the state fair is distributed normally, with a mean of \$32 and a standard deviation of \$3.75. If 1200 people attend the fair, how many people would you expect to spend between \$24.50 and \$35.75?



$$(68\% + 13.5\%) = 81.5\%$$

978 people

15. A baseball team is reviewing their batting statistics. The mean number of hits per batter on the team is 124, and the standard deviation is 14.5.

a) What percent of the batters have fewer than 120 hits? $(-1E99, 120, 124, 14.5) = 39.1\%$

- b) Find the range of hits for the middle 60%?

$$\text{invNorm}(.2, 124, 14.5) = 112 \text{ hits}$$

$$\text{invNorm}(.8, 124, 14.5) = 136 \text{ hits}$$