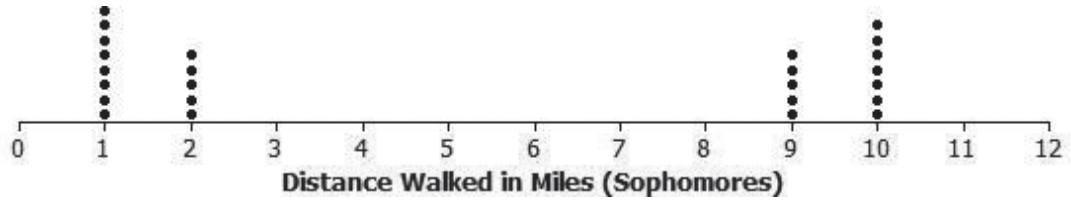
NAME: _____ PERIOD: _____ DATE: _____

Homework Problem Set

The twenty-five sophomores who participated in the walkathon reported their results. A dot plot is shown below.



1. What is different about the sophomore data distribution compared to the data distributions for juniors and seniors?

This is a U-shaped distribution. ½ of the sophmores walk shorter distances (1-2 miles) & ½ walk longer distances (9-10 miles)
Juniors skewed distribution
Seniors symmetric distribution.

2. Estimate the balance point of the sophomore data distribution.

Estimate of mean is 5-6

3. What is the median number of miles walked by a sophomore?

Median: 2 miles

There are 25 values. The median is the 13th value from right or left.

4. How would you describe the sophomore data distribution?

This is a U-shaped distribution. The data values are either small or large. The mean & median are not good indicators of typical distance for sophmores (because its U-shaped)

Consider the following scenario.

The company that created a popular video game "Leaders" plans to release a significant upgrade of the game. Users earn or lose points for making decisions as the leader of an imaginary country. In most cases, repeated playing of the game improves a user's ability to make decisions. The company will launch an online advertising campaign, but at the moment, they are not sure how to focus the advertising. Your goal is to help the company decide how the advertising campaign should be focused. Five videos have been proposed for the following target audiences:

Video 1: Target females with beginning level scores

Video 2: Target males with advanced level scores

Video 3: Target all users with middle range level scores

Video 4: Target males with beginning level scores

Video 5: Target females with advanced level scores

17. Why might the company be interested in developing different videos based on user scores?

Answers will vary.

18. Thirty female users and twenty-five male users were selected at random from a database of people who play the game regularly. Each of them agreed to be part of a research study and report their scores. A leadership score is based on a player's answers to leadership questions. A score of 1 to 40 is considered a beginning level leadership score, a score of 41 to 60 is considered a middle level leadership score, and a score of greater than 60 is considered an advanced level leadership score.

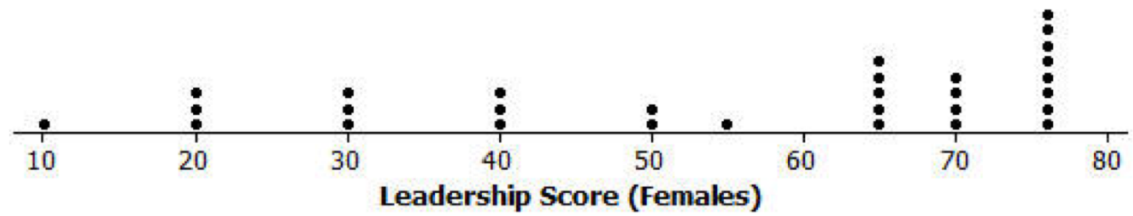
    Use the following data to make a dot plot of the female scores, a dot plot of the male scores, and a dot plot of the scores for the combined group of males and females.

Female scores:

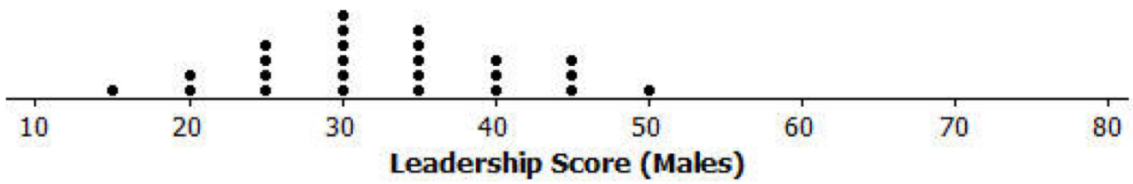
10	20	20	20	30	30	30	40	40	40
50	50	55	65	65	65	65	65	70	70
70	70	76	76	76	76	76	76	76	76

Male scores:

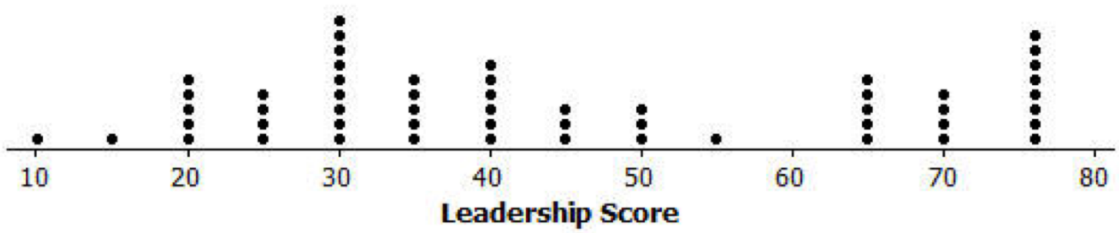
15	20	20	25	25	25	25	30	30	30
30	30	30	35	35	35	35	35	40	40
40	45	45	45	50					



Skewed Left



Symmetrical



19. What do you think is a typical score for a female user? What do you think is a typical score for a male user? Explain how you determined these typical scores.

Females: mean: 1648 ÷ 30 = 54.9 ← middle level
median: 65 ← advanced level
median is better indicator for skewed data

males: mean: 815 ÷ 25 = 32.6 ← beginning level
median: 30 ← beginning level
mean is better indicator since data is symmetrical.

20. Why is it more difficult to report a typical score for the overall group that includes both the males and females?

Overall distribution is difficult to summarize in terms of shape.
Mean: 2463 ÷ 55 = 44.8 > values are fairly close
Median: 40

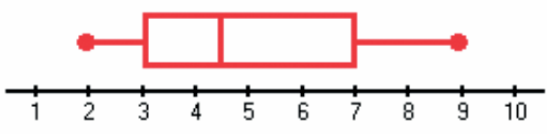
21. Production costs will only allow for two video advertisements to be developed. Which two videos would you recommend for development? Explain your recommendations.

Videos 4 & 5 → based on data gathered from question 19.

Spiral REVIEW—Box Plots

Below is a box and whisker plot for the given data:

8, 6, 3, 5, 3, 4, 2, 9



To complete Problems 22–27, use the box plot shown.

22. First Quartile = 3

23. Median = 4.5

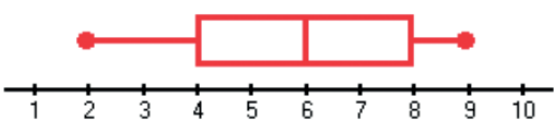
24. Third Quartile = 7

25. Range = 7

26. What is the minimum value? 2

27. What is the maximum value? 9

Use the box and whisker plot below for Problems 28–31.



28. About what percentage of data values are below the median?

50%

29. About what percentage of data values are below the third quartile?

75%

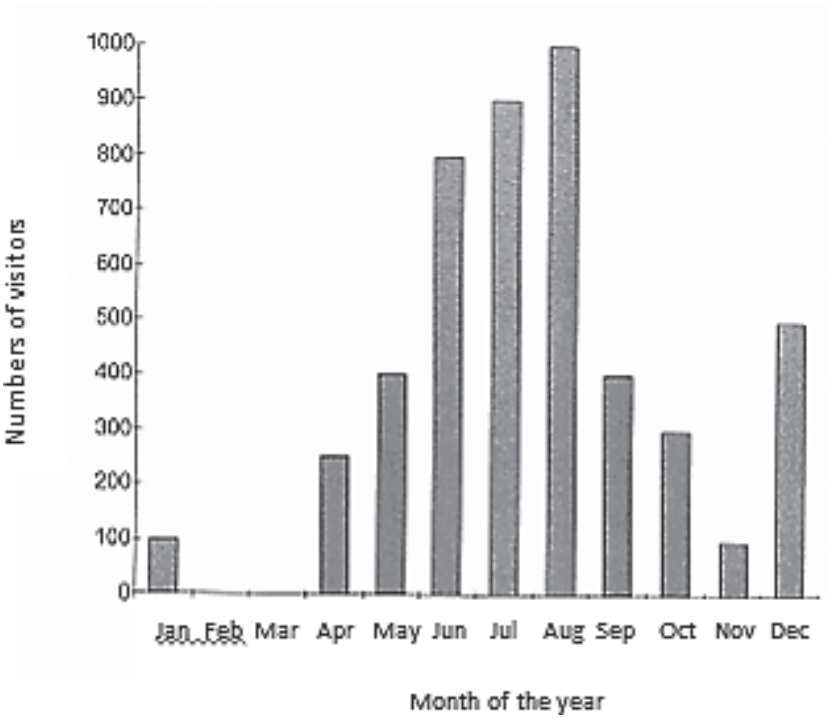
30. About what percentage of the data is located between the first quartile and the median?

25%

31. About what percentage of data is above the first quartile?

75%

The bar graph below shows the number of visitors to an amusement park over the course of one year. Use the bar graph to answer Problems 32–38.



32. In which month did the amusement park receive the most visitors?

August

33. How many visitors came to the park that month?

1,000 visitors

34. Why do you think so many visitors came during that month?

It's the final month of summer.

35. Estimate the number of visitors that came to the park during September, October, and November.

about 800 visitors between months of Sept. — Nov.

36. Describe the patter you see in the number of visitors from April to November.

starts low in April, peaks in August and goes back down in Nov.

37. Why does December not follow the pattern you've observed? Can you think of a reason?

It's a holiday month. People might go to amusement parks more w/ family.

38. What might explain the number of visitors to the park during February and March?

Maybe because the holidays are over and most kids go back to school.