

NAME: _____ PERIOD: _____ DATE: _____

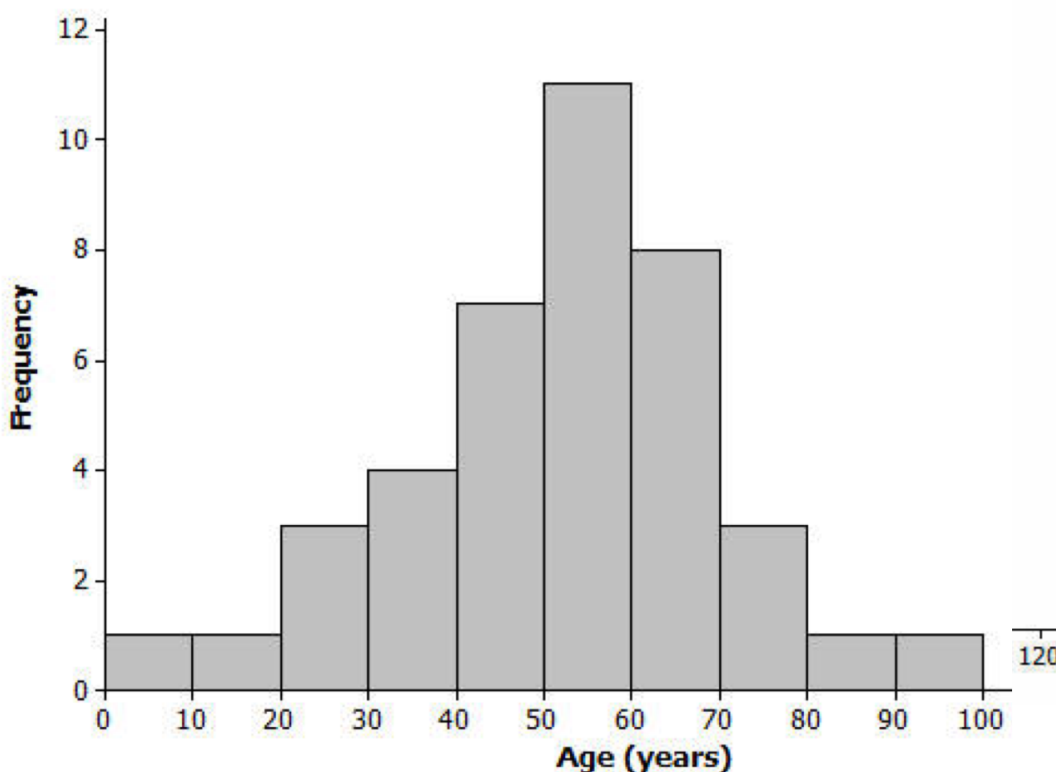
Homework Problem Set

1. A group of forty people were attending an event. The ages of the people are as follows:

6, 13, 24, 27, 28, 32, 32, 34, 38, 42, 42, 43, 48, 49, 49, 51, 52, 52, 53,

53, 53, 54, 55, 56, 57, 60, 61, 61, 62, 66, 66, 66, 68, 70, 72, 78, 83, 97.

A. Create a histogram of the ages using the provided axes.



B. Would you describe your graph of ages as symmetrical or skewed? Explain your choice.

Symmetrical

C. Identify a typical age of the forty people.

55 years old

D. What event do you think the forty people were attending? Use your histogram to justify your conjecture.

Example:

Family Reunion → various ages from 0-100 are represented by data.

E. Describe the graph using SOCS.

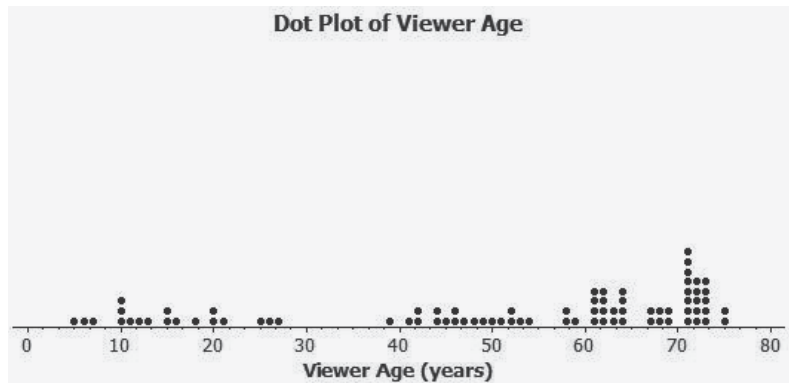
Shape: Symmetrical & unimodal (1 peak)

Outliers: none

Center: median/mean are probably around 55 years.

Spread: range is about 100 years

2. A random sample of eighty viewers of a television show was selected. The dot plot at the right shows the distribution of the ages (in years) of these eighty viewers.



A. What do you think this graph is telling us about the ages of the eighty viewers in this sample?

- Typical age of viewers is between 60-70 years old.
- The show appeals to a variety of ages.

B. Can you think of a reason why the data presented by this graph provide important information? Who might be interested in this data distribution?

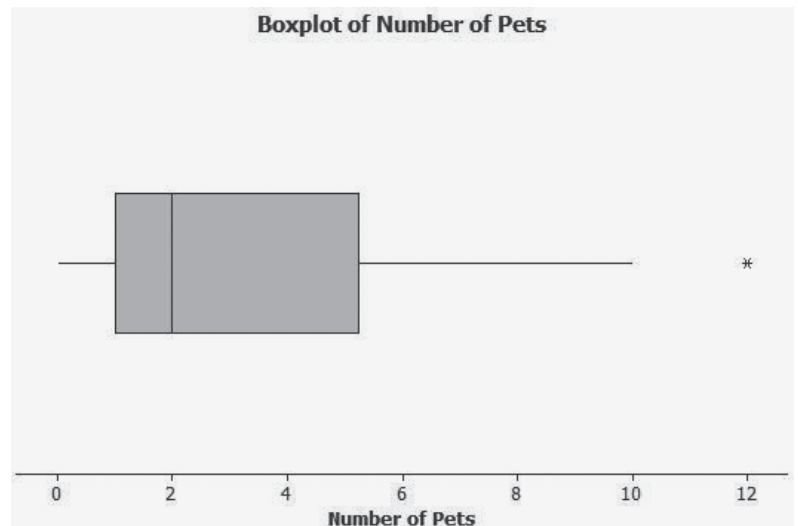
These data are important for understanding audience of show.

If show is paid for by commercials, then distribution is important for sponsors.

C. Based on your previous work with dot plots, would you describe this dot plot as representing a symmetric or a skewed data distribution? Explain your answer.

Skewed Left — tail of distribution is on left.

3. Thirty students from River City High School were asked how many pets they owned. The box plot was prepared from their answers.



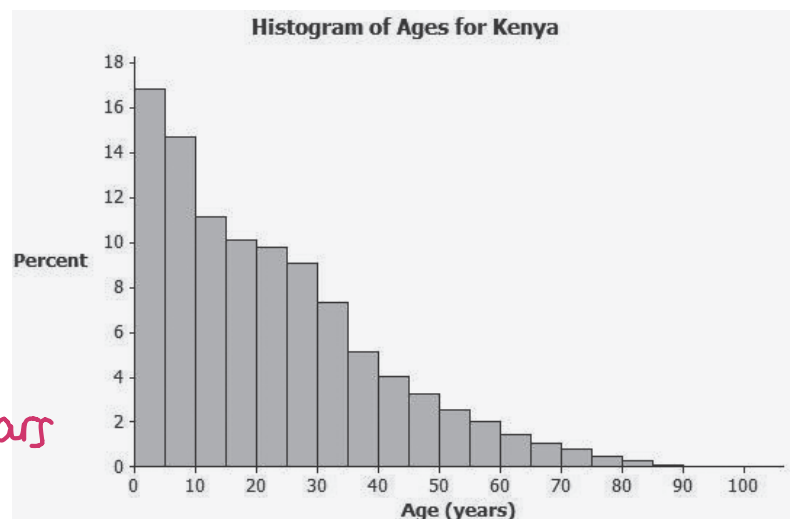
- A. What does the box plot tell us about the number of pets owned by the thirty students at River City High School?

50% of students have between 1 and 5 pets

- B. Why might understanding the data behind this graph be important?

• helps you plan events involving pets & understanding interests of a group of people.

4. The histogram represents the age distribution of the population of Kenya in 2010.



- A. What do you think this graph is telling us about the population of Kenya?

A large percentage of people are 10 years or younger.

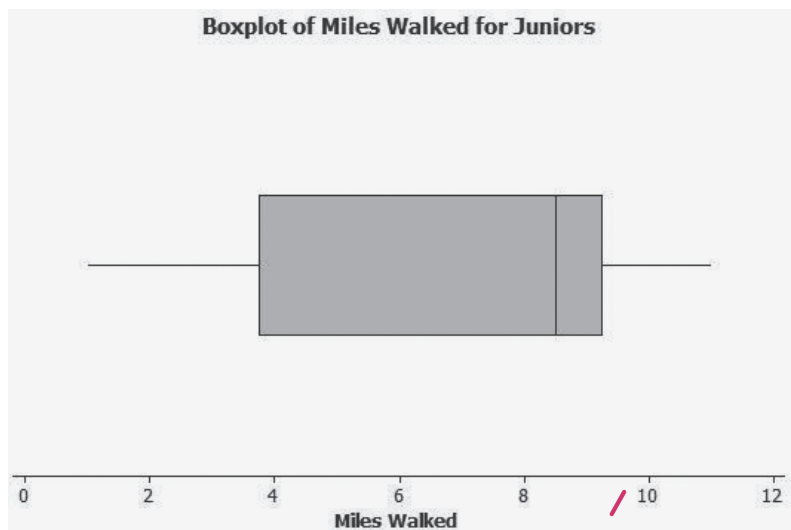
B. Why might we want to study the data represented by this graph?

Tells us about Kenya & its challenges based on its population/demographics
 It is important to understand data because it may lead to reasons why data is occurring and then to solutions.

C. Based on your previous work with histograms, would you describe this histogram as representing a symmetrical or a skewed distribution? Explain your answer.

skewed right → tail of distribution is on right.

5. Twenty-two juniors from River City High School participated in a walkathon to raise money for the school band. The following box plot was constructed using the number of miles walked by each of the twenty-two juniors.



A. What do you think the box plot tells us about the number of miles walked by the twenty-two juniors?

50% of juniors walked 4-9 miles
 25% 1-4 miles
 25% 9-11 miles

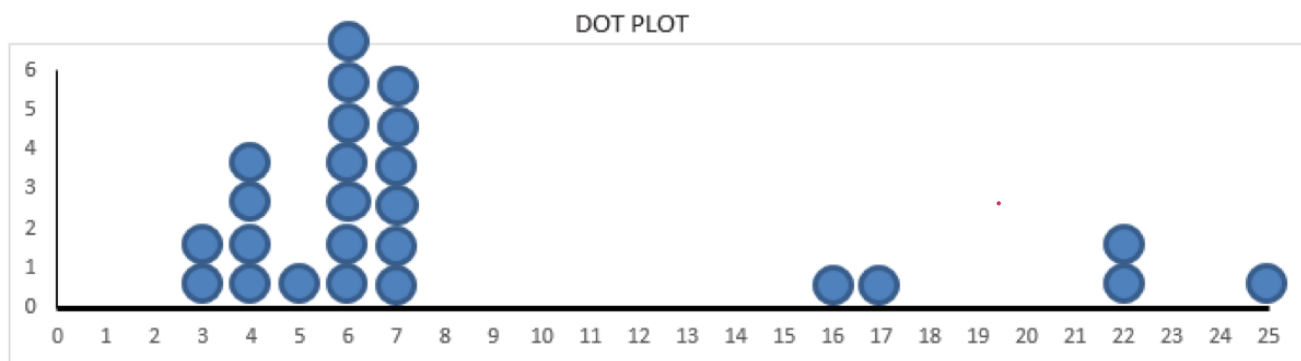
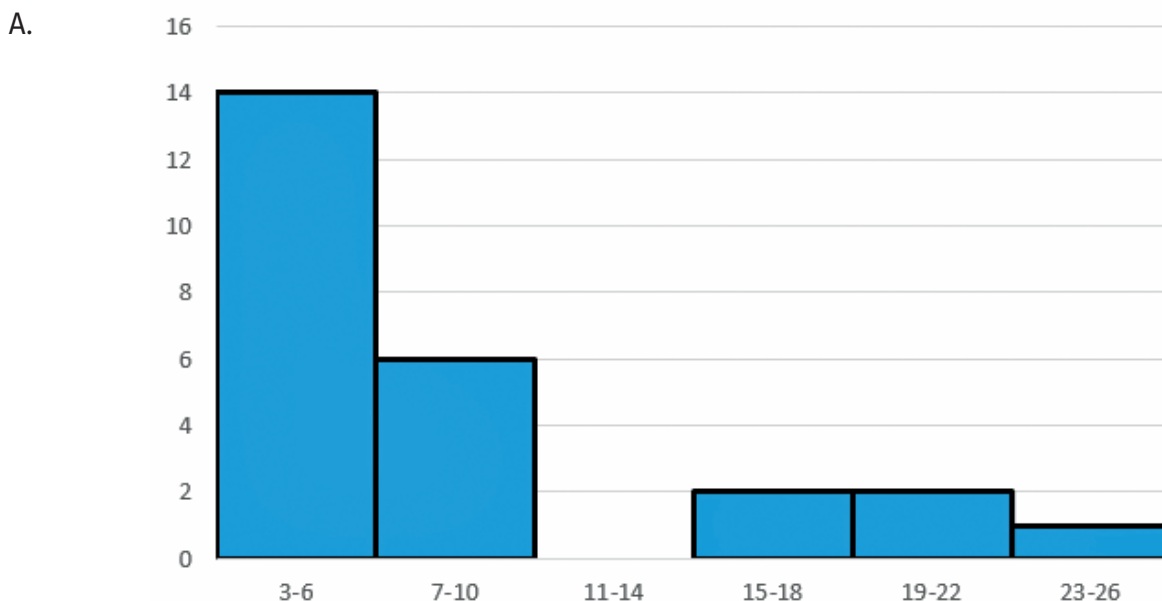
B. Why might understanding the data behind this graph be important?

provides indication of participation of junior class.
 sponsors may be interested in data.

6. Use the data below to create a dot plot.

Twenty-five people were attending an event. The ages of the people are as follows:

3, 3, 4, 4, 4, 4, 5, 6, 6, 6, 6, 6, 6, 6, 7, 7, 7, 7, 7, 7, 16, 17, 22, 22, 25.



B. Which graph do you think is the most representative of the data? Why?

Dot Plot: easier to see big gaps in data.

Histogram: easier to see groupings w/o worrying about individual data points.

C. Why weren't you asked to create a bar graph?

A bar graph would look like a dot plot except w/ bars.
Bar graphs are used to show categorical data.

D. Would you describe the graphs as symmetrical or skewed? Explain your choice.

Skewed right → tail is on right.

E. Identify a typical age of the twenty-five people.

Between 5-10 years old. (histogram)
6 or 7 years old. (dot plot)

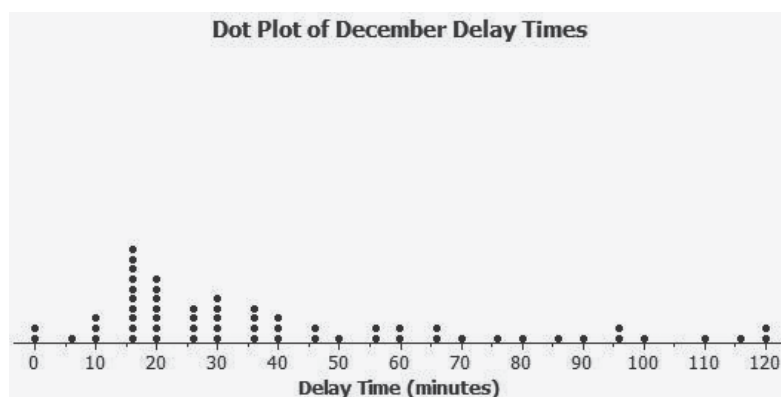
F. What event do you think the twenty-five people were attending? Use a graph to justify your conjecture.

Answers may vary.

story time at library. The older ages could be babysitters or caretakers.

7. Answer the questions that accompany the graph to begin your understanding of the story behind the data.

Transportation officials collect data on flight delays (the number of minutes past the scheduled departure time that a flight takes off). Consider the dot plot of the delay times for sixty BigAir flights during December 2012.



- A. What do you think this graph is telling us about the flight delays for these sixty flights?

most flights are delayed for 15 minutes, some for longer.

- B. Can you think of a reason why the data presented by this graph provide important information? Who might be interested in this data distribution?

- If flights are late, travelers would not select the airline BigAir.
- Travelers using airline would be interested in data.

- C. Based on your previous work with dot plots, would you describe this dot plot as representing a symmetric or a skewed data distribution? Use SOCS to describe this graph.

Shape: skewed right

Outliers: no outliers

Center: median is better indicator of average.

Spread: 120 minutes.

REVIEW—Solving Equations and Simplifying Expressions with Exponents

Solve the equations below. Be sure to check your solution.

$$\begin{array}{r} 4x + 3 = 11 \\ \underline{-3 \quad -3} \\ 4x = 8 \\ \underline{\quad \quad 4} \\ x = 2 \end{array}$$

$$\begin{array}{r} 2 - 2x = 12 \\ \underline{-2 \quad -2} \\ -2x = 10 \\ \underline{\quad \quad -2} \\ x = -5 \end{array}$$

$$\begin{array}{r} 3x + 1 = 6x + 7 \\ \underline{-3x \quad -3x} \\ -7 = 3x + 7 \\ \underline{-7 \quad -7} \\ -6 = 3x \\ \underline{\quad \quad 3} \\ x = -2 \end{array}$$

$$\begin{array}{r} \frac{x}{2} = \frac{5}{10} \\ \underline{\cdot 10 \quad \cdot 10} \\ 10x = 10 \\ \underline{\quad \quad 10} \\ x = 1 \end{array}$$

$$\begin{array}{r} \frac{x}{2} + 3 = 7 \\ \underline{-3 \quad -3} \\ \frac{x}{2} = 4 \cdot 2 \\ \underline{\quad \quad 2} \\ x = 8 \end{array}$$

$$\begin{array}{r} 2(x + 1) = 16 \\ 2x + 2 = 16 \\ \underline{-2 \quad -2} \\ 2x = 14 \\ \underline{\quad \quad 2} \\ x = 7 \end{array}$$

$$\begin{array}{r} 4(x - 2) = 5(x - 1) \\ 4x - 8 = 5x - 5 \\ \underline{-4x \quad -4x} \\ -8 = x - 5 \\ \underline{+5 \quad +5} \\ -3 = x \end{array}$$

$$\begin{array}{r} 3(2x + 1) = 5(x - 2) + 12 \\ 6x + 3 = 5x - 10 + 12 \\ 6x + 3 = 5x + 2 \\ \underline{-5x \quad -5x} \\ x + 3 = 2 \\ \underline{-3 \quad -3} \\ x = -1 \end{array}$$

$$\begin{array}{r} \frac{x+2}{x-1} = 2(x-1) \\ x+2 = 2(x-1) \\ x+2 = 2x-2 \\ \underline{-x \quad -x} \\ 2 = x-2 \\ \underline{+2 \quad +2} \\ 4 = x \end{array}$$

$$\begin{array}{r} \frac{x}{10} - \frac{3x}{2} = 7 \\ \frac{3x}{2} \cdot \frac{5}{5} = \frac{15x}{10} \\ \frac{x}{10} - \frac{15x}{10} = 7 \\ \underline{+10 \quad +10} \\ x - 15x = 70 \\ -14x = 70 \\ \underline{-14 \quad -14} \\ x = -5 \end{array}$$

$$\begin{array}{r} 7x + 4 + 2x = 2x + 3(3x - 1) + 7 \\ 9x + 4 = 2x + 9x - 3 + 7 \\ 9x + 4 = 11x + 4 \\ \underline{-9x \quad -9x} \\ 4 = 2x + 4 \\ \underline{-4 \quad -4} \\ 0 = 2x \\ \underline{\quad \quad 2} \\ x = 0 \end{array}$$

$$\begin{array}{r} \frac{4}{x} + \frac{3}{x} = 14 \\ \frac{7}{x} = 14 \\ \underline{\quad \quad 1} \\ 14x = 7 \\ \underline{\quad \quad 14} \\ x = \frac{1}{2} \text{ or } 0.5 \end{array}$$