

10.1 & 10.2

**Stem & Leaf
Plots and
Histograms**

Stem-and-Leaf Plots

A **stem-and-leaf plot** uses the digits of data values to organize a data set. Each data value is broken into a **stem** (digit or digits on the left) and a **leaf** (digit or digits on the right).

A stem-and-leaf plot shows how data are distributed.

Stem	Leaf
2	0 0 1 2 5 7
3	1 4 8
4	2
5	8 9

Key: 2|0 = 20

The key explains what the stems and leaves represent.

- 1) List all the numbers displayed from the stem-and-leaf plot.

Example 2

Make a stem-and-leaf plot of the length of the eleven fish, in inches.

7, 12, 20, 14, 20, 25, 8, 18, 16, 20, 14

Stem	Leaf

Key:

Example 3

Test Scores

Stem	Leaf
6	6
7	0 5 7 8
8	1 1 3 4 4 6 8 8 9
9	0 2 9
10	0

Key: 9|2 = 92 points

The stem-and-leaf plot shows student test scores. (a) How many students scored less than 80 points? (b) How many students scored at least 90 points? (c) How are the data distributed?

a.

b.

c.

Example 4

Test Scores

Stem	Leaf
6	6
7	0 5 7 8
8	1 1 3 4 4 6 8 8 9
9	0 2 9
10	0

Key: 9|2 = 92 points

- How many students scored more than 85 points?
- How many students scored at most 75 points?
- What is the median test score?

Example 5

Which statement is *not* true?

- (A) Most of the plants are less than 20 inches tall.
- (B) The median plant height is 11 inches.
- (C) The range of the plant heights is 35 inches.
- (D) The plant height that occurs most often is 11 inches.

Plant Heights

Stem	Leaf
0	1 2 4 5 6 8 9
1	0 1 1 5 7
2	2 5
3	6

Key: 1|5 = 15 inches



Example 5



Plant Heights

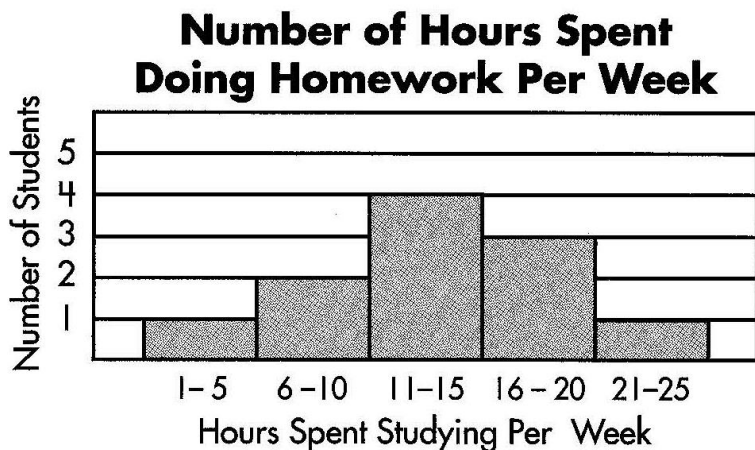
Stem	Leaf
0	1 2 4 5 6 8 9
1	0 1 1 5 7
2	2 5
3	6

Key: 1 | 5 = 15 inches

You are told that three plants are taller than 20 inches.
Is the statement true? Explain.

Histograms

A **histogram** is a type of bar chart in which the categories are consecutive and the intervals are equal.



In this histogram, each bar represents an **interval** of 5 hours. The intervals are equal. The bars are **consecutive**, or in sequence one after the other.

Use the histogram above to answer each question.

1. How many students were surveyed? _____
2. Which two intervals (bars) were selected by an equal number of students? _____ and _____
How many students chose each of those intervals? _____
3. Which interval was selected by the most students? _____
4. How many more students do 16-20 hours of homework than 1-5 hours? _____

Use the histogram at the right to answer the following questions.

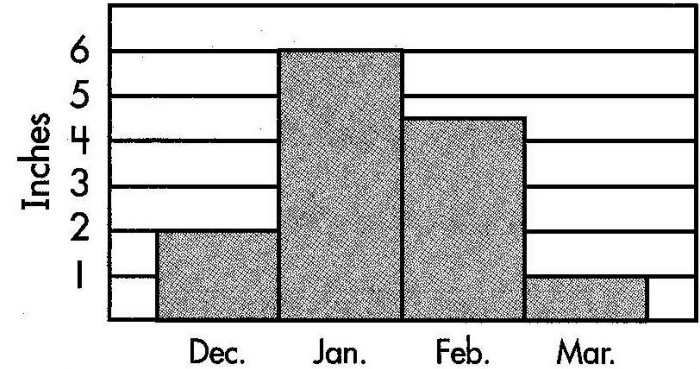
5. Which month had the most snowfall? _____

6. How many inches of snow fell in January through March? _____

7. How many more inches of snow fell in February than in March? _____

8. How many inches of snow fell in December? _____

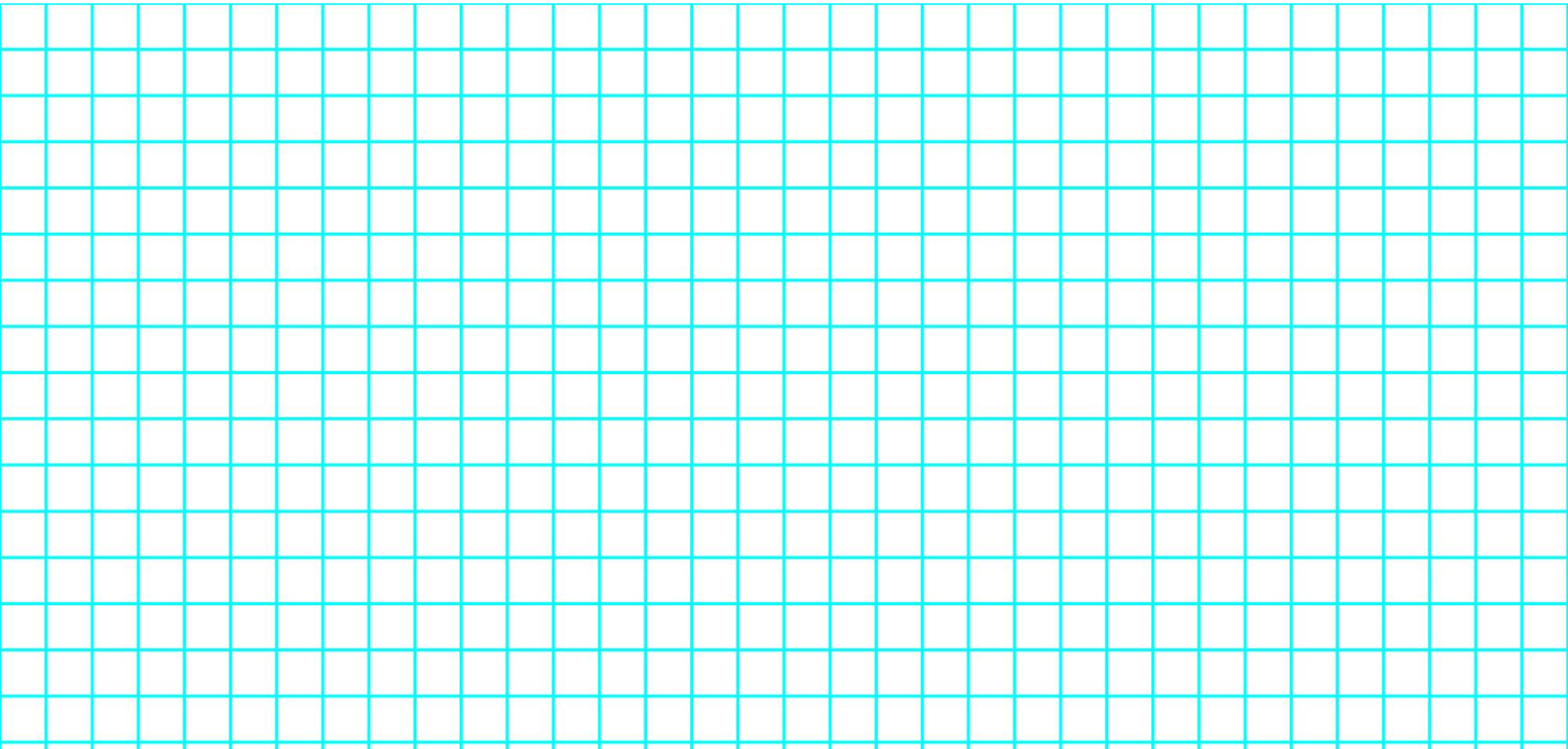
Snowfall per Month



Example 6

The frequency table shows the numbers of laps that people in a swimming class completed today. Display the data in a histogram.

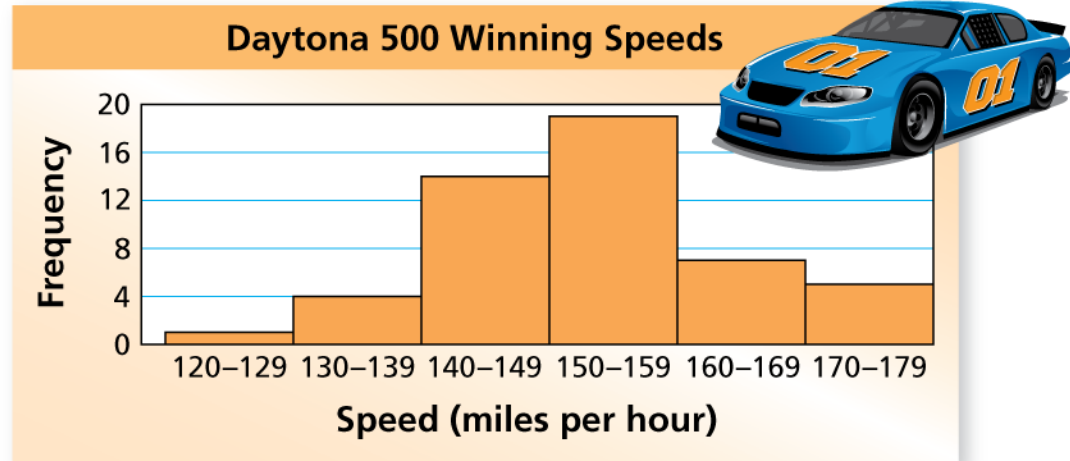
Number of Laps	Frequency
1–3	11
4–6	4
7–9	0
10–12	3
13–15	6



Example 7

The histogram shows the winning speeds at the Daytona 500.

- (a) Which interval contains the most data values? (b) How many of the winning speeds are less than 140 miles per hour? (c) How many of the winning speeds are at least 160 miles per hour?



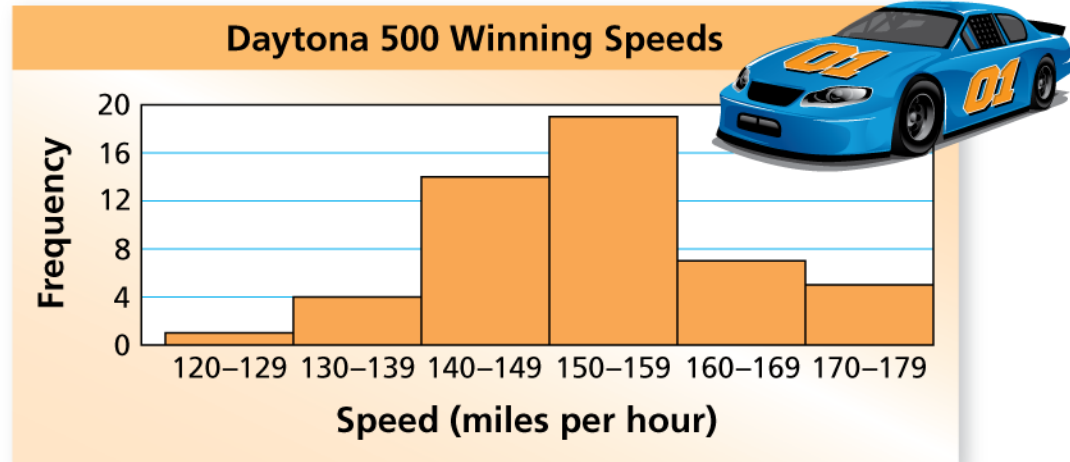
a.

b.

Example 7

The histogram shows the winning speeds at the Daytona 500.

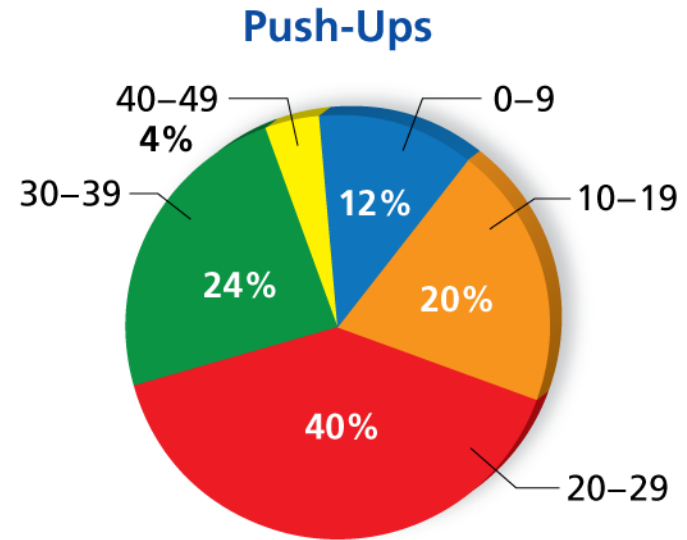
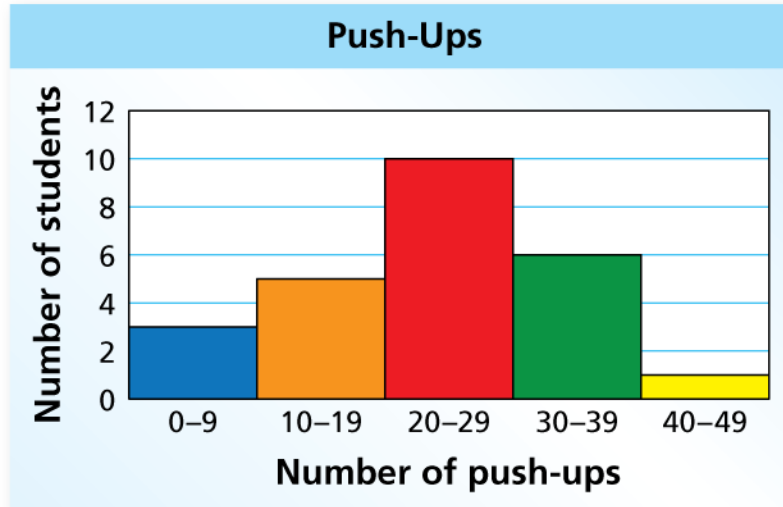
- (a) Which interval contains the most data values? (b) How many of the winning speeds are less than 140 miles per hour? (c) How many of the winning speeds are at least 160 miles per hour?



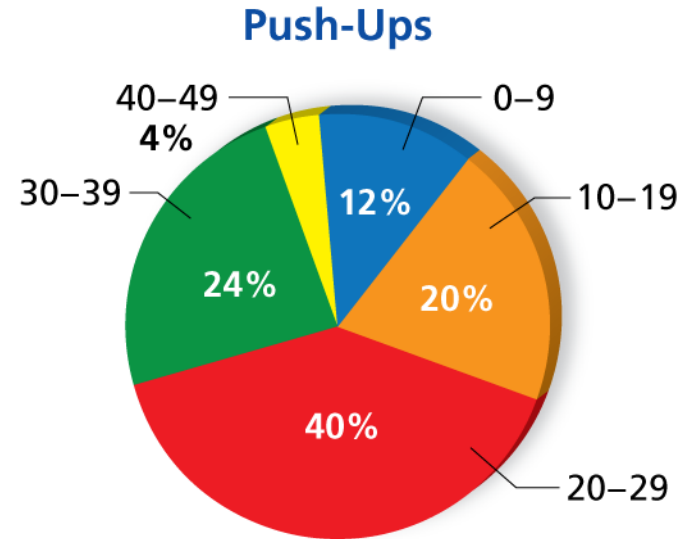
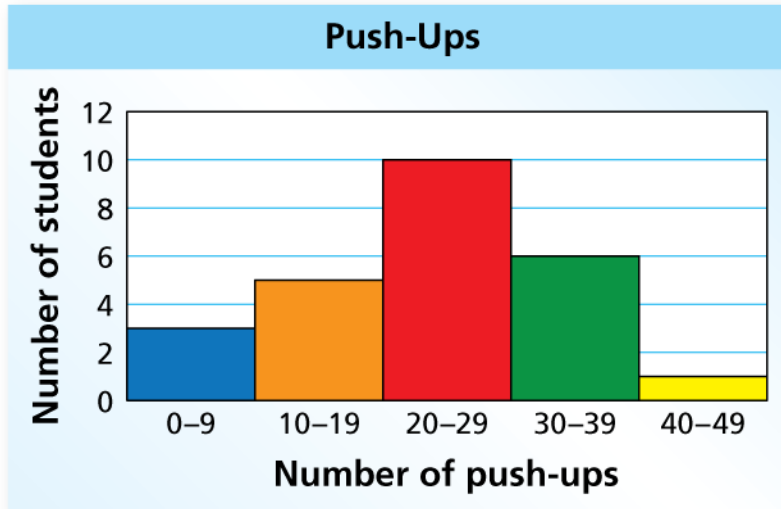
c.

Example 8

The data displays show how many push-ups students in a class completed for a physical fitness test. Which data display can you use to find how many students are in the class? Explain.



Example 9



Which statement *cannot* be made using the data displays in Example 3?

- (A) Twelve percent of the class completed less than 10 push-ups.
- (B) Five students completed at least 10 and at most 19 push-ups.
- (C) At least one student completed more than 39 push-ups.
- (D) Twenty-nine percent of the class completed 30 or more push-ups.

