Name: _____ Date: _____

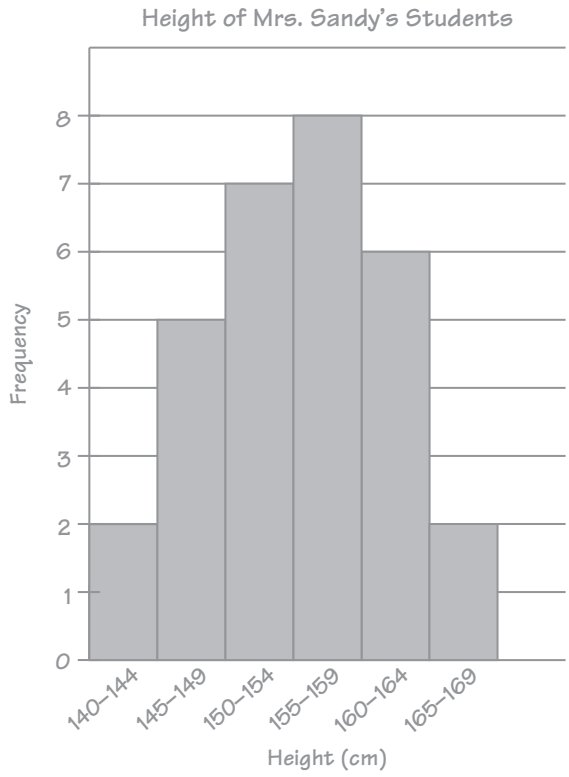
Lesson 13.3 Histograms

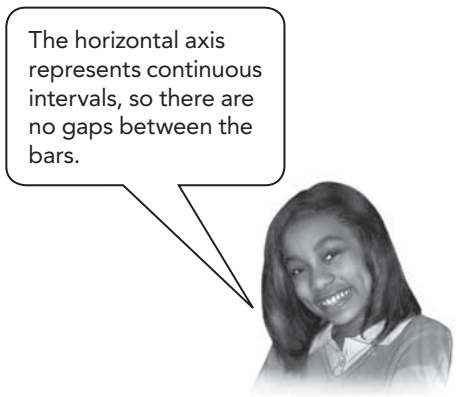
Draw a histogram for the data set. Include a title.

Example

The table shows the heights (in centimeters) of 30 students in Mrs. Sandy's class.

Height (cm)	140–144	145–149	150–154	155–159	160–164	165–169
Frequency	2	5	7	8	6	2





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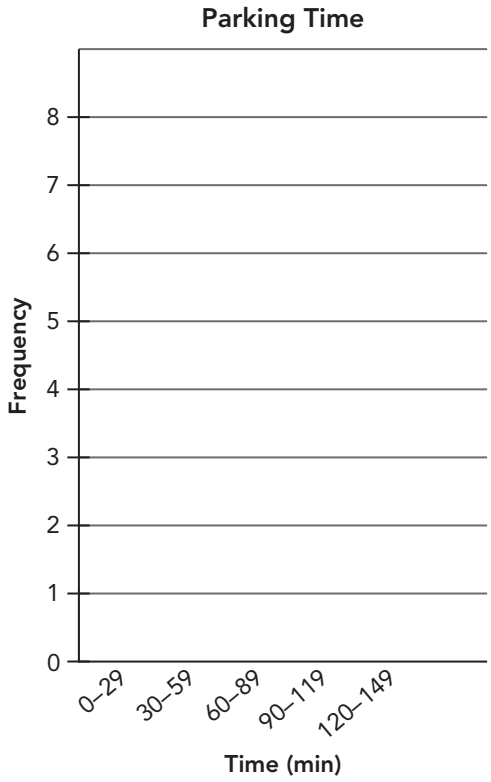
Name: _____ Date: _____

1. The table shows the parking times (in minutes) of 20 cars.

Parking Time (min)	Frequency
0–29	3
30–59	5
60–89	8
90–119	3
120–149	1



2. The table shows the distances (in kilometers) between the homes of 25 students and the recreation center.

Distance (km)	1–2	3–4	5–6	7–8	9–10
Frequency	5	7	6	4	3

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Name: _____ Date: _____

Group the data set into suitable intervals. Draw a histogram for each set of interval then, compare the histograms.

Example

The time, in minutes, it takes 30 people to drive a certain distance is shown by the data below.

35	60	41	65	45	80	35	55	60	42
58	45	45	68	50	31	65	70	40	55
64	48	60	39	54	65	50	65	50	38

a) Group the data into 5 intervals. Display the data in a histogram.

b) Group the data into 7 intervals. Display the data in a histogram.

c) Compare the two histograms.

The greatest value in the data set is 80, and the least value in the data set is 31.

Range: 80 – 31 = 49

To make 5 intervals, use 49 ÷ 5 = 9.8, and round up to 10 in each interval. To make 7 intervals, use 49 ÷ 7, or 7 in each interval.

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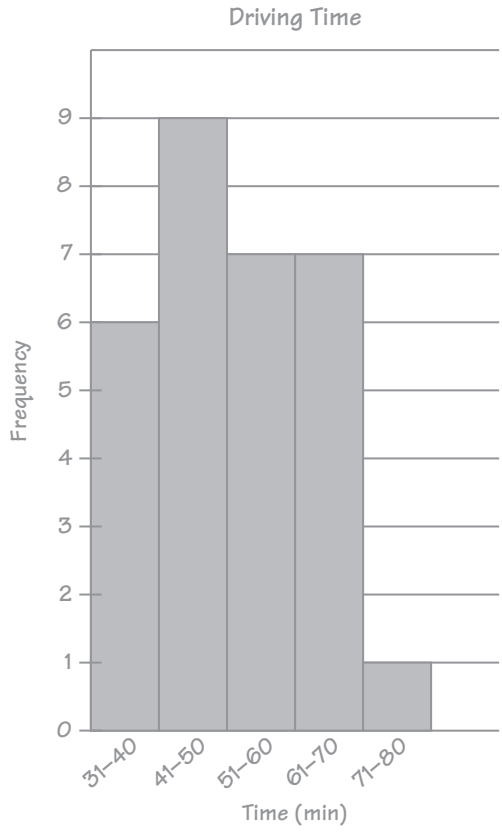
a) 5 intervals

Time (min)	31–40	41–50	51–60	61–70	71–80
Frequency	6	9	7	7	1



b) 7 intervals

Time (min)	31–37	38–44	45–51	52–58	59–65	66–72	73–80
Frequency	3	5	7	4	8	2	1

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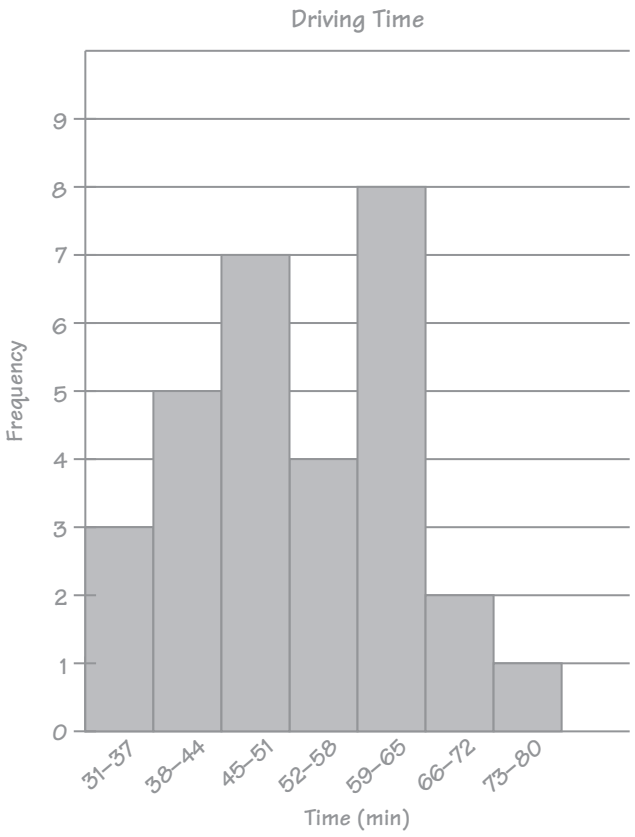
Name: _____ Date: _____



c) The 5-interval histogram is easier to group and draw than the 7-interval histogram. But the spread of the data is revealed better in the 7-interval histogram.

From the two histograms, it can be seen that 80 is the outlier. It stands apart from the other data.

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Name: _____ Date: _____

3. The data shows the time (in minutes) taken by 24 students to complete a fun run.

25	35	42	28	58	45	35	60
38	52	37	45	45	30	50	40
50	35	55	30	48	40	39	69

The greatest value in the data set is _____, and the least value in the data set is _____.

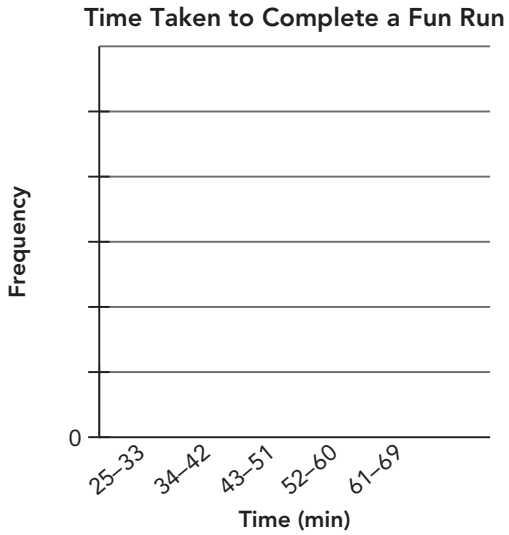
Range: _____ − _____ = _____

To make 5 intervals, use _____ ÷ _____ = _____, and round up to _____ in each interval. To make 7 intervals, use _____ ÷ _____, or _____ in each interval.

a) Group the data into 5 intervals.

Time (min)	15–33	34–42	43–51	52–60	61–69
Frequency	4				1

Display the data in a histogram.



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Name: _____ Date: _____

b) Group the data into 7 intervals.

Time (min)							
Frequency							

Display the data in a histogram.

c) Compare the two histograms.

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Name: _____ Date: _____

4. The data shows the length (in centimeters) of 30 different species of fish.

3	12	5	6	12	16	6	20	4	14
25	21	10	11	5	15	4	18	10	8
18	11	24	10	15	14	12	9	30	15

a) Group the data into two suitable intervals and tabulate them.

b) Draw a histogram for each set of interval.

Histogram 1:

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Histogram 2:

c) Compare the two histograms.

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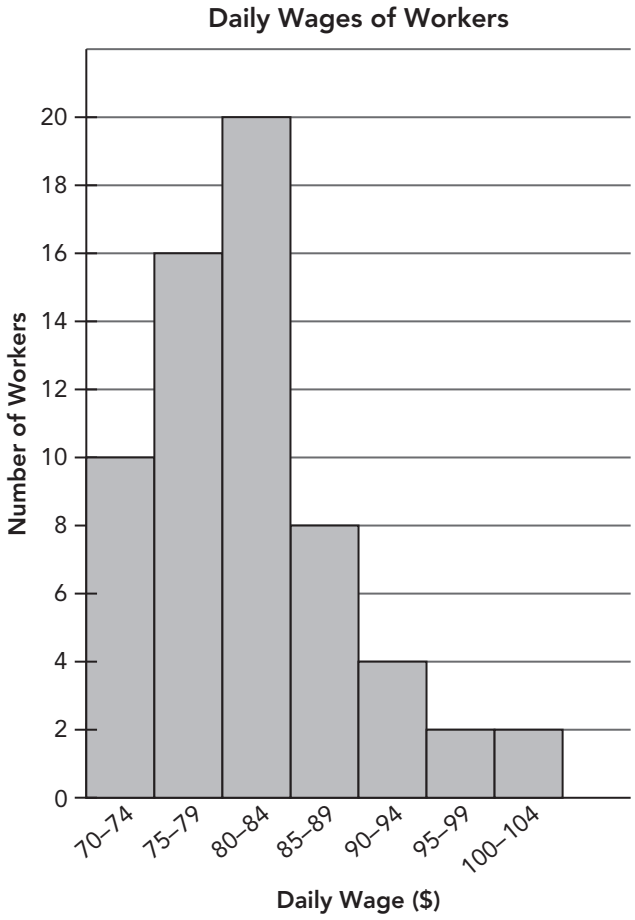
Name: _____ Date: _____

Describe the data from the histogram.

Example

The histogram shows the daily wages of a group of workers in a factory.
Briefly describe the data.



There are 62 workers in the group. Most of the workers earn

$75 to $84 daily. The daily wage spans from $70 to $104.

So, the range is $34. The histogram has a tail to the right.

Most of the data is to the right of the most frequent value. So, the histogram

is right skewed.

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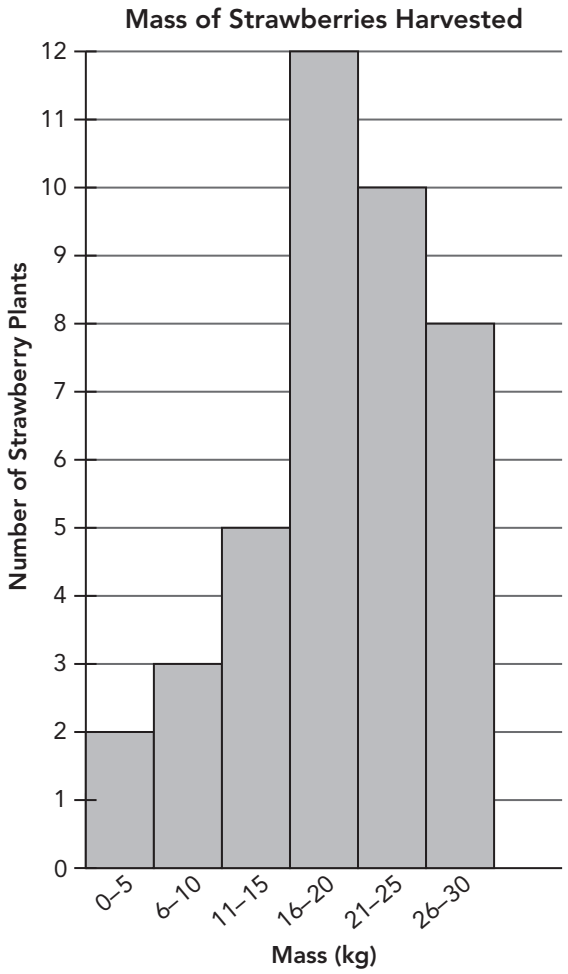
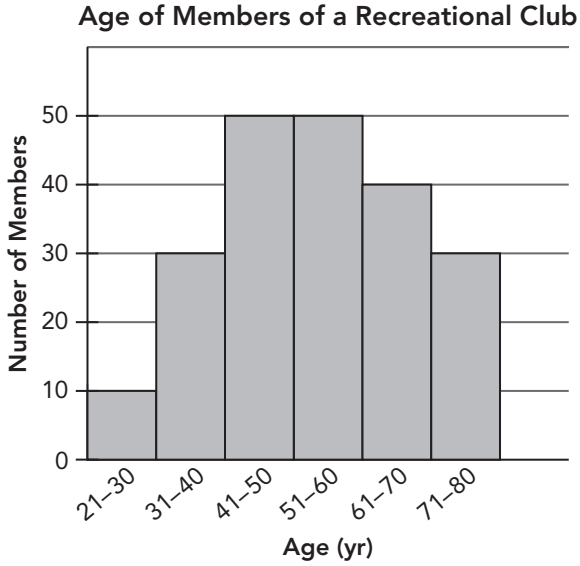
Name: _____ Date: _____

5. The histogram shows the mass of strawberries harvested from 40 strawberry plants.



Most of the strawberry plants harvested _____ to _____ kilograms of strawberries. The mass of strawberries harvested spans from _____ to _____. So, the range is _____. The histogram has a tail to the _____. Most of the data is to the left of the most frequent value. So, the histogram is _____.

6. The histogram shows the ages of the members of a recreational club.



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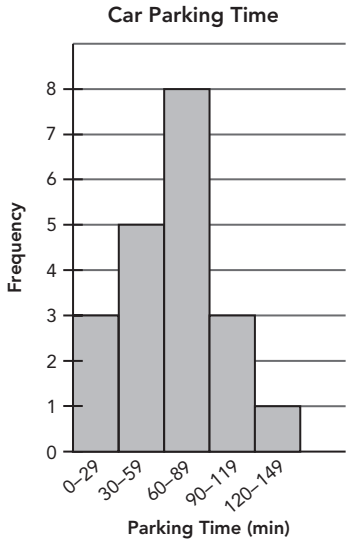
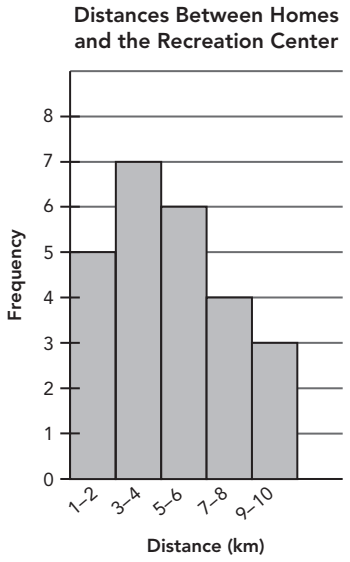
Lesson 13.3

1.



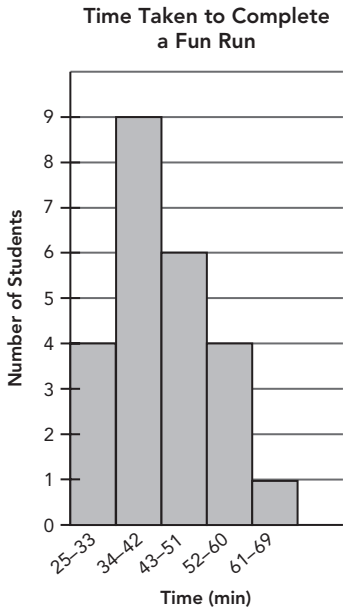
2.



3. The greatest value in the data set is 69, and the least value in the data set is 25.
Range: 69 − 25 = 44
To make 5 intervals, use 44 ÷ 5 = 8.8, and round up to 9 in each interval. To make 7 intervals, use 44 ÷ 7 = 6.3, or 6 numbers in each interval.

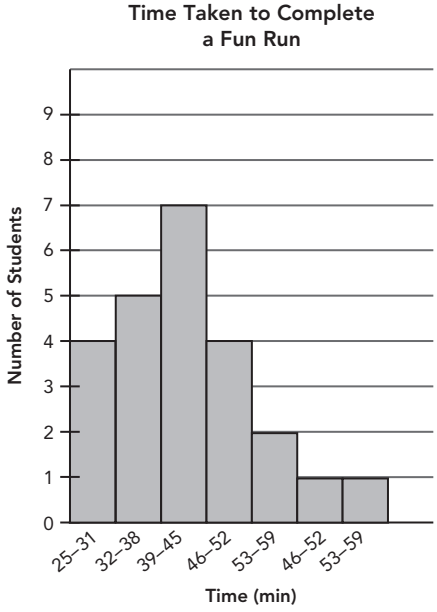
a) 5 intervals

Time (minutes)	25–33	34–42	43–51	52–60	61–69
Number of Students	4	9	6	4	1



b) 7 intervals

Time (minutes)	25–31	32–38	39–45	46–52	53–59	60–66	67–73
Number of Students	4	5	7	4	2	1	1



c) The 5-interval histogram is easier to group and draw than the 7-interval histogram. But the spread of the data is revealed better in the 7-interval histogram.

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4 a) Answers vary. Sample:

Group the data into intervals of 4:

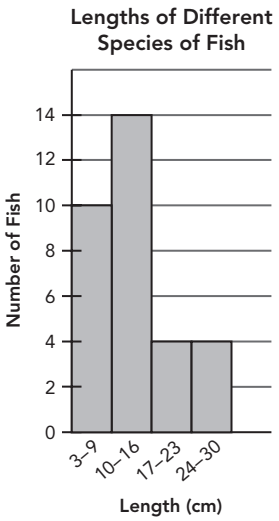
Length (centimeters)	3–9	10–16	17–23	24–30
Species of Fish	9	14	4	3

Group the data in intervals of 6:

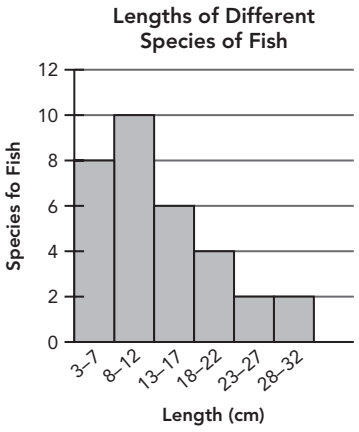
Length (centimeters)	3–7	8–12	13–17	18–22	23–27	28–32
Species of Fish	7	10	6	4	2	1

b) Answers vary. Sample:

Histogram 1:



Histogram 2:



c) Answers vary. Sample:
The 6-interval histogram is easier to group and draw than the 4-interval histogram. But the spread of the data is revealed better in the 7-interval histogram.

5. Most of the strawberry plants harvested 16 to 30 kilograms of strawberries. The mass of strawberries harvested spans from 1 to 30 kilograms. So, the range is 29. The histogram has a tail to the left. Most of the data is to the left of the most frequent value. So, the histogram is left skewed.

6. Most of the members are 41 to 70 years old. The age of the members spans from 21 to 80. The histogram is right skewed.

Chapter 14

Lesson 14.1

1. 7.15 **2.** 16.08
3. 3.76 **4.** 2.35
5. 15 **6.** 25
7. 9 **8.** 45
9. 21.5°C **10.** 20 meters

11. Total score
= 12 + 18 + 20 + 15 + 18 + 15 + 16 + 14
= 128 points

$$\text{Mean score} = \frac{\text{total score}}{\text{total number of students}}$$
$$= \frac{128}{8}$$
= 16 points

The mean quiz score of the eight students is 16 points.

12. 7.5 meters

13. Mean
$$= \frac{\text{total number of cars}}{\text{total number of months}}$$
$$= \frac{102 + 80 + 75 + 64 + 143 + 112}{6}$$
$$= \frac{576}{6}$$
= 96 cars

The mean number of cars sold from January to June was 96 cars.

14. 38 seeds

15. The team scored 1 goal in 1 match.
→ 1 × 1 = 1 goal
The team scored 2 goals in 1 match.
→ 1 × 2 = 2 goals
The team scored 3 goals in 5 matches.
→ 5 × 3 = 15 goals
The team scored 4 goals in 2 matches.
→ 2 × 4 = 8 goals
The team scored 5 goals in 4 matches.
→ 4 × 5 = 20 goals

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