Name: _____ Date: _____

CHAPTER

13 Introduction to Statistics

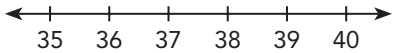
Lesson 13.1 Collecting and Tabulating Data

Complete.

The table below shows the number of students who attended Ms. Murray's dance class in a year.

Month	Number of Students
January	40
February	36
March	35
April	35
May	37
June	40
July	40
August	38
September	36
October	39
November	35
December	40

1. Represent the number of students for each month in the line plot below. Each × represents 1 month.



Number of Students

Name: _____ Date: _____

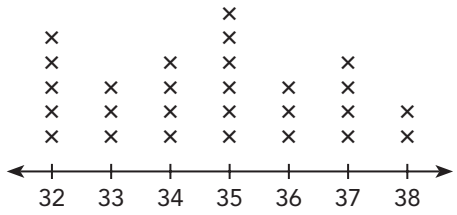
2. The most common number of students in a class is _____.

3. There are 2 months when the number of students in a class is _____.

4. There are _____ months when the number of students in a class is 40.

5. The least number of students in a class is _____.

The line plot shows the height, in inches, of potted plants in a nursery.
Each × represents 1 potted plant.



Height of Potted Plants (in.)

6. What is the height of the shortest potted plant? _____

7. What is the height of the tallest potted plant? _____

8. What is the difference in height between the tallest and the shortest potted plant? _____

9. How many potted plants are taller than 35 inches? _____

10. How many potted plants are shorter than 35 inches? _____

11. The ratio of the number of potted plants that are 35 inches tall to the number of potted plants that are 37 inches tall is _____.

12. The number of potted plants that are 37 inches tall is _____ of the total number of potted plants.

Name: _____ Date: _____

Complete. Use the data in the table.

Example

Mrs. Wright wanted to find out the favorite subject of each of her students.
She used a tally chart to record what she had found.

Complete the following table by counting the tally marks.

Favorite Subject of Mrs. Wright's Students

Subject	Tally	Frequency
Science	𝍸 𝍸 𝍸 //	17
English	𝍸 𝍸 𝍸 𝍸	20
Math	𝍸 𝍸 ///	13

Frequency refers to how often a piece of data occurs.

a) How many students does Mrs. Wright have in her class?

Mrs. Wright has 50 students in her class.

b) How many students chose English as their favorite subject?

20 students chose English as their favorite subject.

c) How many more students preferred Science to Math?

4 more students preferred Science to Math.

d) How many fewer students preferred Math to English?

7 fewer students preferred Math to English.

e) How many students chose Science or Math as their favorite subject?

30 students chose Science or Math as their favorite subject.

f) Which subject did most students choose as their favorite subject?

Most students chose English as their favorite subject.

Name: _____ Date: _____

Michelle conducted a survey to find out her friends' favorite colors. She used the tally chart below to record her findings.

13. Complete the table by counting the tally marks.

Favorite Color of Michelle's Friends

Favorite Color	Tally	Frequency
Red	𝍸 /	
Blue	𝍸 ///	
Green	////	
Yellow	//	
White	𝍸	

14. How many of Michelle's friends took part in the survey?

_____ of Michelle's friends took part in the survey.

15. How many friends chose white as their favorite color?

_____ friends chose white as their favorite color.

16. How many more friends chose blue as their favorite color than yellow?

_____ more friends chose blue as their favorite color than yellow.

17. How many friends chose blue, red, or white as their favorite color?

A total of _____ friends chose blue, red, or white as their favorite color.

18. How many more friends chose red than yellow?

_____ more friends chose red than yellow.

19. How many fewer friends chose green than red?

_____ fewer friends chose green than red.

Name: _____ Date: _____

Ms. Sydney asked her students the number of hours they spend watching television every day. The average number of hours her students spend watching television every day is shown in the following list.

0	1	5	3	4	3	2	1	0	2
2	3	2	2	2	3	1	3	4	4
2	3	1	1	2	2	1	3	3	2

20. Complete the table.

Number of Hours	Tally	Frequency
0–1		
2–3		
4–5		

21. How many students responded to Ms. Sydney?

_____ students responded to Ms. Sydney.

22. How many students spend at least 2 hours watching television every day?

_____ students spend at least 2 hours watch television every day.

23. How many students watch television for more than 3 hours every day?

_____ students watch television for more than 3 hours every day.

24. How many hours do most students spend watching television every day?

Most students spend _____ hours watching television every day.

25. How many students do not watch television at all? _____

_____ students do not watch television at all.

Name: _____ Date: _____

A survey was conducted to find the number of people in each car at a traffic light within 10 minutes. The following list shows the results of the survey.

1	2	3	5	2	4	1	3	2	3
4	5	3	1	4	2	4	2	3	1
4	2	3	2	3	4	1	2	3	3

26. Complete the table.

Number of People in Each Car	Tally	Frequency
1		
2		
3		
4		
5		

27. How many cars were involved in the survey?

_____ cars were involved in the survey.

28. How many cars had fewer than 3 people in them?

_____ cars had fewer than 3 people in them.

29. How many cars had at least 3 people in them?

_____ cars had at least 3 people in them.

30. What is the total number of people in these cars?

The total number of people in these cars is _____.

Name: _____ Date: _____

Forty students were asked the number of books they read for the last month. Their responses are shown in the following list.

1	2	0	3	2	4	1	4	3	4
4	3	4	2	4	3	4	2	5	1
6	2	5	3	2	0	3	1	2	4
3	4	1	4	2	1	4	2	3	1

31. Complete the table.

Number of Books	Tally	Frequency
0		
1		
2		
3		
4		
5		
6		

32. How many books did most of the students read last month?

Most of the students read _____ books last month.

33. How many students read fewer than 2 books?

_____ students read fewer than 2 books.

34. How many students read at least 4 books?

_____ students read at least 4 books.

Lesson 12.4

1. 61.5 square centimeters

2. 165.6 square inches

3. $1 - \frac{2}{5} = \frac{3}{5}$

Height of empty space

$= \frac{3}{5} \times 25$

$= 15$ cm

Volume of water needed

$= 50 \times 30 \times 15$

$= 22{,}500$ cm^3

The volume of water needed to fill the tank completely is 22,500 cubic centimeters.

4. 2,240 cubic inches

5. 76,440 cubic centimeters

6. 2,143.2 cubic centimeters

7. a) Area of base

= area of triangular base

$= \frac{1}{2} \cdot 4 \cdot 5$

$= 10$ cm^2

Volume

= area of base × height of prism

$= 10 \times 2$

$= 20$ cm^3

The volume of the eraser is 20 cubic centimeters.

b) Surface area

= perimeter of base · height + total area of two bases

$= (5 + 4 + 6.4) \cdot 2 + 10 \cdot 2$

$= 15.4 \cdot 2 + 20$

$= 30.8 + 20$

$= 50.8$ cm^2

The surface area of the eraser is 50.8 square centimeters.

8. a) 3,400 cubic millimeters

b) 2,085 square millimeters

9. a) $V = Bh$

$360 = B \cdot 40$

$360 \div 40 = B \cdot 40 \div 40$

$9 = B$

Length of each side of base $= \sqrt{9}$

$= 3$ in.

The length of each side of the square base is 3 inches.

b) Surface area

= perimeter of base · height + total area of two bases

$= 3 \cdot 4 \cdot 40 + 2 \cdot 3 \cdot 3$

$= 480 + 18$

$= 498$ in.^{2}

The surface area of the table leg is 498 square inches.

10. 6,620 square centimeters

11. a) Area of hexagonal base

$= 6 \cdot$ area of triangle

$= 6 \cdot \frac{1}{2} \cdot 75 \cdot 65$

$= 14{,}625$ cm^2

$V = Bh$

$146{,}250 = 14{,}625 \cdot h$

$146{,}250 \div 14{,}625 = 14{,}625 \cdot h \div 14{,}625$

$10 = h$

The height of the prism is 10 centimeters.

b) Surface area

= perimeter of base · height + total area of two bases

$= 75 \cdot 6 \cdot 10 + 2 \cdot 14{,}625$

$= 4{,}500 + 29{,}250$

$= 33{,}750$ cm^2

The surface area of the prism is 33,750 square centimeters.

12. a) 20 inches

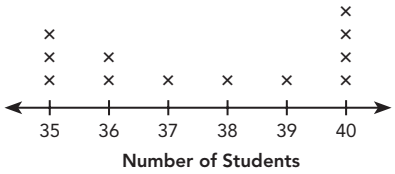
b) 594.85 square inches

13. 122 square centimeters

Chapter 13

Lesson 13.1

1.



2. 40

3. 36

4. 4

5. 35

6. 32 in.

7. 38 in.

8. 6 in.

9. 9

10. 12

11. 3 : 2

12. $\frac{4}{27}$

13. Favorite Color of Michelle's Friends

Favorite Color	Tally	Frequency
Red	𝍸 /	6
Blue	𝍸 ///	8
Green	////	4
Yellow	//	2
White	𝍸	5

14. 25 **15.** 5

16. 6 **17.** 19

18. 4 **19.** 2

20.

Number of Hours	Tally	Frequency
0 – 1	𝍸 ///	8
2 – 3	𝍸 𝍸 𝍸 ///	18
4 – 5	////	4

21. 30 **22.** 22

23. 4 **24.** 2 hours

25. 2

26.

Number of People in Each Car	Tally	Frequency
1	𝍸	5
2	𝍸 ///	8
3	𝍸 ////	9
4	𝍸 /	6
5	//	2

27. 30 **28.** 13

29. 17 **30.** 82

31.

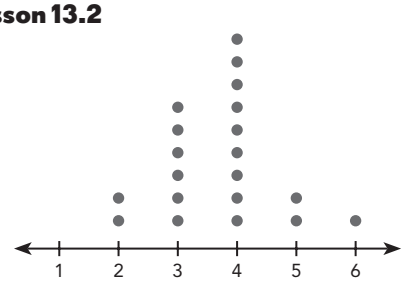
Number of Books	Tally	Frequency
0	//	2
1	𝍸 //	7
2	𝍸 ////	9
3	𝍸 ///	8
4	𝍸 𝍸 /	11
5	//	2
6	/	1

32. 4 **33.** 9

34. 14

Lesson 13.2

1.



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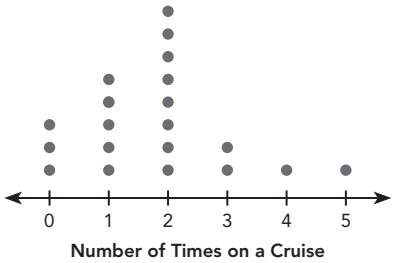

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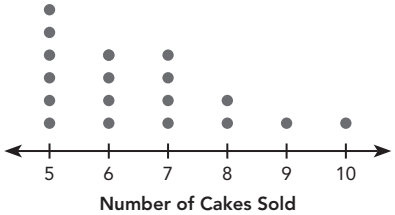

4. The 18 dots represent 18 students. The data show a nearly symmetrical dot plot centered around 30. Most of the data fall between 25 and 35. The data spans from 15 to 45. So, the range is 45 − 15 = 30. The students typically completed their assignments between 25 minutes and 35 minutes, but the time spent to complete their assignments ranges from 15 minutes to 45 minutes.

5. The 20 dots represent 20 volunteers. The data show a symmetrical dot plot centered around 150. Most of the data fall between 100 and 200. The data spans from 50 to 250. So, the range is 250 − 50 = 200. The volunteers typically collected between 100 bottles and 200 bottles, but the number of plastic bottles collected ranges from 50 to 250 bottles.

6. The 15 dots represent 15 orchards. The data show a nearly symmetrical dot plot centered around 12. Most of the data fall between 11 and 14. The data spans from 10 to 15. So, the range is 15 − 10 = 5. The number of orange trees is typically between 11 and 14, but the number of orange trees ranges from 10 to 15 trees.

7. The 16 dots represent 16 students. The dot plot has a "tail" on the right. Most of the data fall between 2.0 and 3.0, and the distribution is skewed to the right. The data spans from 1.5 to 4.0. So, the range is 4.0 − 1.5 = 2.5. From the description of the plot, you know that the students spent about 2.5 hours surfing the net per day, and all of them spent 1.5 hours to 4.0 hours.

8. The 18 dots represent 18 friends. The dot plot has a "tail" on the left. Most of the data fall between 17 and 19, and the distribution is skewed to the left. The data spans from 15 to 19. So, the range is 19 − 15 = 4. From the description of the plot, you know that the group of friends made about 18 paper airplanes, and all of them made 15 to 19 paper airplanes.