CHAPTER

13 Introduction to Statistics

Lesson 13.1 Collecting and Tabulating Data

Complete the table. Solve.

1. A car dealership conducted a survey among their customers. They asked their customers to state their favorite car between models *A*, *B*, *C*, and *D*.

A tally chart was used to record their findings.

Model	Tally	Frequency
A	~~HHH~~ ~~HHH~~ //	
B	~~HHH~~ ~~HHH~~ /	
C	~~HHH~~ ////	
D	~~HHH~~ ///	

a) How many customers took part in the survey?

b) How many more customers prefer model *A* than model *D*?

c) What percent of the customers surveyed stated model *A* as their favorite?

2. Some students were asked to name their favorite Olympic sport. The following responses were the choices provided:

(a) basketball   (b) soccer   (c) hockey   (d) swimming

Sport	Tally	Frequency
Basketball	~~HHt~~ ~~HHt~~	
Soccer	~~HHt~~ /	
Hockey	~~HHt~~	
Swimming	~~HHt~~ ~~HHt~~ ~~HHt~~	

a)   How many students were questioned?

b)   How many students named swimming or hockey as their favorite Olympic sport?

c)   What percent of the students named soccer as their favorite Olympic sport?

Tabulate the data. Solve. Show your work.

3. Mr. Rickman wanted to find out how many hours in a day his students spend surfing the Internet. The average number of hours reported by each student is shown.

Number of Hours

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

a)   Arrange the numbers in ascending order.

b)   Complete the frequency table.

Number of Hours	Tally	Frequency
0–2		
3–4		
5–6		

c)   How many students surf the Internet for more than 2 hours each day?

d)   How many students surf the Internet for less than 5 hours each day?

Name: _____   Date: _____

4. Candice conducted a survey among 30 families in her neighborhood.
She asked them the number of pets in their household. These are the data
she collected:

Number of Pets

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

a) Arrange the numbers in ascending order.

b) Complete the frequency table.

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

c) How many families own at least 2 pets?

d) What percent of the families own 4 to 5 pets?

Brain @ Work

1. a) The side length of each identical square is the height of the box.

Height (in.)	Length (in.)	Width (in.)	Volume (in.³)
1	28	18	504
2	26	16	832
3	24	14	1,008
4	22	12	1,056
5	20	10	1,000
6	18	8	864

The maximum volume of the box is 1,056 cubic inches.

b) From part **a)**, the side length of each identical square is 4 inches.

2. a) Number of cubes
$= 1 + 4 + 9 + 16 + 25 = 55$
Volume of cube $= 3^3 = 27$ in.³
Volume of solid $= 27 \cdot 55 = 1,485$ in.³
The volume of the solid is 1,485 cubic inches.

b) Number of faces from the top view or bottom view $= 25$
Number of faces from the front view or back view $= 15$
Number of faces from the left view or right view $= 15$
Total number of faces
$= (25 + 15 + 15) \cdot 2 = 110$
Surface area of solid
$= (3^2) \cdot 110 = 990$ in.²
The surface area of the solid is 990 square inches.

Chapter 13

Lesson 13.1

1.

Model	Frequency
A	12
B	11
C	9
D	8

a) Number of customers
$= 12 + 11 + 9 + 8 = 40$
There were 40 customers who took part in the survey.

b) Number of customers $= 12 - 8 = 4$
4 more customers prefer model *A* than model *D*.

c) $\dfrac{12}{40} \times 100\% = 30\%$
30% of the customers surveyed stated model *A* as their favorite.

2.

Sport	Frequency
Basketball	10
Soccer	6
Hockey	5
Swimming	15

a) Number of students
$= 10 + 6 + 5 + 15 = 36$
36 students were questioned.

b) Number of students $= 15 + 5 = 20$
20 students named swimming or hockey as their favorite Olympic sport.

c) Percent $= \dfrac{6}{36} \times 100\% = 16\dfrac{2}{3}\%$
$16\dfrac{2}{3}\%$ of the students named soccer as their favorite Olympic sport.

3. a) 0, 1, 2, 2, 2, 2, 2, 3, 3, 3, 3, 3, 3, 3, 3, 3, 4, 4, 4, 5, 5, 5, 5, 6, 6, 6, 6

b)

Number of Hours	Tally	Frequency
0–2	ⅢⅢ //	7
3–4	ⅢⅢ ⅢⅢ //	12
5–6	ⅢⅢ ///	8

c) Number of students $= 12 + 8$
$= 20$ students
20 students surf the Internet for more than 2 hours each day.

d) Number of students $= 7 + 12$
$= 19$ students
19 students surf the Internet for less than 5 hours each day.

4. a) 0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2, 3, 3, 3, 3, 3, 4, 4

b)

Number of Pets	Tally	Frequency
0–1	ⅢⅢ ⅢⅢ ////	14
2–3	ⅢⅢ ⅢⅢ ////	14
4–5	//	2

c) Number of families $= 14 + 2 = 16$
16 families own at least 2 pets.

d) Percent $= \dfrac{2}{30} \times 100\% = 6\dfrac{2}{3}\%$
$6\dfrac{2}{3}\%$ of the families own four to five pets.