

Statistics

S.1 Frequency Tables and Histograms



Histograms and Frequency Distributions

Healthy Crunch Cereal is about to take over sponsorship of the TV program "Space Voyage." The advertising manager has requested a report on the age distribution of the viewers so the spot ads can be tailored to appeal to the age groups with the most viewers. The viewer age report contains the graph in Figure 2-13 that was made from a random sample of viewers.

GUIDED EXERCISE

6

Review the graph of the viewer age distribution for the program "Space Voyage" (Figure 2-13) before answering the following questions.

- (a) What does the height of each bar represent?

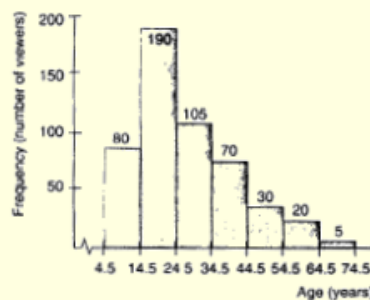
How many viewers are represented in this graph?
- (b) What does the width of a bar represent?
- (c) What ages are included in the group with the most viewers? Is this graph detailed enough to tell you exactly how many viewers are 21 years old?
- (d) From the information in this graph about the ages of the viewers, which of the following ads do you think the manager might choose for "Space Voyage"?

Scene 1: A grandmother and first grader at the breakfast table. The grandmother says to the child, "Eat Healthy Crunch Cereal because it will make you grow."

Scene 2: A middle-aged man reading the stock report. An empty bowl is on the table with an open box of Healthy Crunch Cereal beside it. The man puts down the paper and puts his hands on the box of Healthy Crunch as he says, "I eat Healthy Crunch even *before* I read the stock report."

Scene 3: Two young campers eating breakfast in front of their tent. A box of Healthy Crunch Cereal is clearly visible in the foreground. One camper says to the other, "Healthy Crunch will help us climb that mountain."

FIGURE 2-13 Viewer Age for "Space Voyage"



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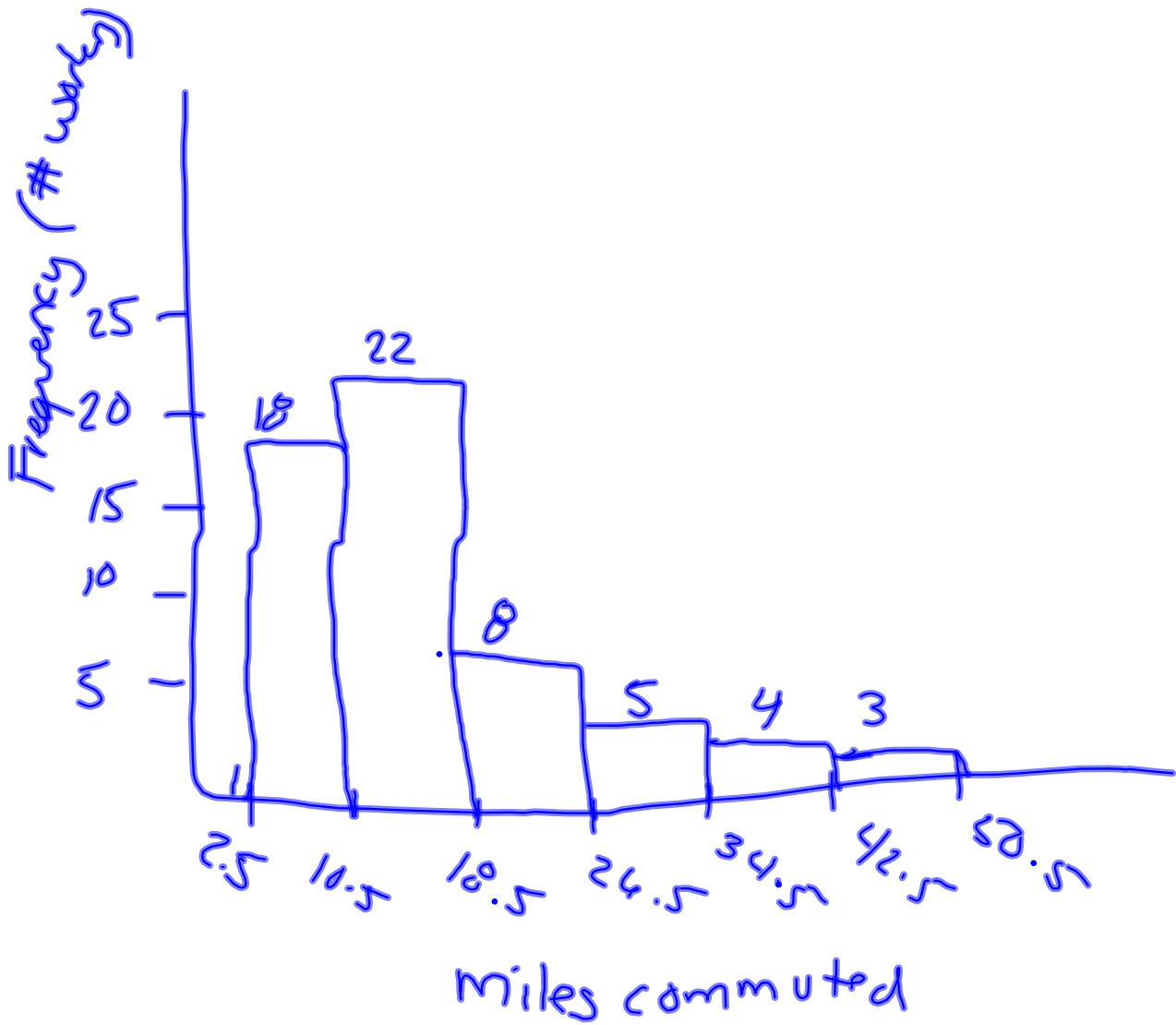
One-Way Commuting Distances in Miles for 60 Workers in Downtown Dallas:

	<i>max</i>		<i>min</i>						
13	47	10	3	16	20	17	40	4	3
7	25	8	21	19	15	3	17	14	6
12	45	3	8	4	16	11	18	23	12
6	3	14	13	7	15	46	12	9	18
34	13	41	28	36	17	24	27	29	9
14	26	10	24	37	31	8	16	12	16

$$\text{width: } \frac{47-3}{6} = 7.\bar{3} \rightarrow \boxed{8}$$

3	2.5 - 10.5				
11	10.5 - 18.5				
19	18.5 - 26.5				
27	26.5 - 34.5				
35	34.5 - 42.5				
43	42.5 - 50.5				

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One irate customer called Dollar Day Mail Order Company 40 times during the last two weeks to see why his order had not arrived. Each time he called, he recorded the length of time he was put on hold before being allowed to talk to a customer representative.

Length of Time on Hold, in Minutes

1	5	5	6	7	4	8	7	6	5
5	6	7	6	6	5	8	9	9	10
7	8	11	2	4	6	5	12	13	6
3	7	8	8	9	9	10	9	8	9

$$\frac{13-1}{5} = 2.4 \rightarrow \boxed{3}$$

