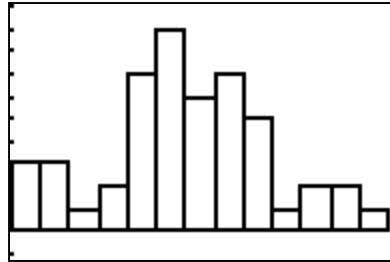


4: Displaying Data --- Answers

1. They are both ways to organize quantitative data into groups. A frequency distribution is in table form, a histogram is graphical.
2. It is easy to organize data in a frequency distribution and you can get a better feel for how the data are distributed than by just looking at the raw data.
3. With a quick glance you can see how the data are distributed. You can easily estimate the center and spread of the distribution.
4. One height was 62 inches and 6 were 66 inches.

5.

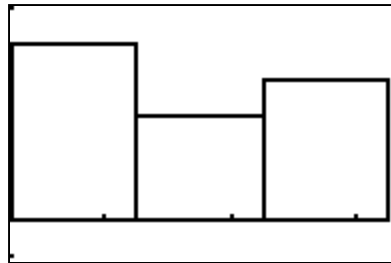
a)



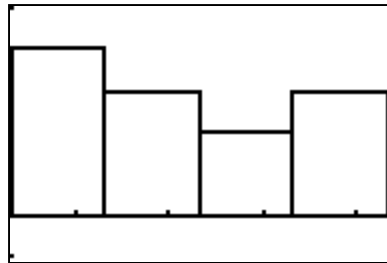
- b) On the TI-83, change the settings in WINDOW to $Xscl = 3$. This puts the data into groups of three. Make sure the Xmin is your lowest data value (60), and you adjust Ymax to account for the larger frequency values.

6.

b)



c)



- d) The data are grouped differently. You need to keep in mind that with larger groupings it might not be as clear to see how the data is distributed.

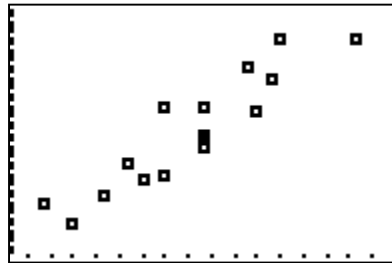
7.

- a) For (a) the average is about 5. For (b) again, an estimate for the average is about 5.
- b) It was easier to estimate the average for (a). In (b) we know we have 25 numbers that are between 0 and 5 and 26 that are between 5 and 10, but we don't know what these are exactly. It could be 25 ones and 26 sixes, it could be 25 fours and 26 nines, or it could be many other combinations of numbers.
- c) You should be sure to have enough different groupings so you can see how the data are distributed.

8. In general, taller people have longer arms.

- 9.
- Positive; it costs more to heat/cool a larger building.
 - No association; an old Toyota has better gas mileage than a new Lincoln, and a new compact car has better gas mileage than an old "boat."
 - Positive; more crime in a larger population, in general.
 - No association; cost depends on popularity of the group.
 - We would guess a negative association.
- 10.
- The cost depends on the size of the building, so the cost is the dependent variable, size is the independent variable. Horizontal axis: size of building (independent); Vertical axis: cost (dependent).
 - Horizontal axis: weight. Vertical axis: gas mileage. (Gas mileage depends on weight in general).
 - Horizontal axis: size of city. Vertical axis: number of crimes. (The number of crimes depends on size in general.)
 - Horizontal axis: age of car. Vertical axis: price. (The price depends on age.)
 - We would not expect any association in this case, so either one could go on either axis.
11. If the point lies above the line, the arm span is greater than the height. If the point lies below the line, the arm span is less than the height.
12. An xy -line is used to graph a function (and often has an x -value of time.) A scatterplot is used to just graph a collection of data.

13.



14. For set (a) the xy -line is better because you can see how the y -values change as the x -values increase. For set (b) the scatterplot is better because you can see a positive association. The xy -line is not a function, so it doesn't make sense.

15.

- Histogram
- 10
- Between 5.1 and 5.2 grams

16.

