Chapter 10.4 Misleading Graphs and Statistics

Bellwork:

1) Write the equation of the line shown.
   \[ y = \frac{1}{2}x + 1 \]
2) Write the equation of the line that passes through the point (2, 3) and has a slope of -5.
3) Find the mean, median, mode and range of the data: 56, 61, 75, 49, 69, 91, 87, 54, 79, 62.
4) Make a box and whisker plot for the following data: 10, 8, 21, 11, 9, 7, 5, 10, 6, 9.

Graphs and statistics (data) can be used to influence the way people believe and think.

One saying I have heard about statistics is:

Statistics Never Lie, but Liars use Statistics!!!

We are going to look at ways that we can be mislead or deceived by graphs and statistics. The more aware we are by this the less likely we are to be fooled.

Misleading Bar Graphs:

1) The graph shows customer satisfaction between four different brands.
   a. Explain why this graph may be misleading.
   b. What might someone be lead to believe because of this graph?
   c. Who might want to use this graph?

Misleading Line Graphs:

2) The annual rainfall for a metropolitan area is given in the graph to the left.
   a. Explain why this graph may be misleading?
   b. What might someone believe because of the graph?
   c. Who might want to use the graph? Explain.
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Misleading Circle Graphs:
- The circle graph shows a county budget for the year 2005.
  a. Why is this graph misleading?
  b. What might someone believe because of this graph?
  c. Who might want to use this graph?

Misleading Statistics:
- A study of 5 households found the following number of pets per household: 2, 1, 1, 9, and 2. Explain why the following statement is misleading: "The average household has 3 pets."
- Sue surveyed people at a baseball stadium about their leisure activities. Explain why her statement is misleading: "85% of this town prefers sports over music."

Statistics can also be misleading. Is the way data is collected and the way the data is reported.

Random Sample: sufficiently large random sample, all members being surveyed have an equal chance of being selected.

- A study of 5 households found the following number of pets per household: 2, 1, 1, 9, and 2. Explain why the following statement is misleading: "The average household has 3 pets."

- A researcher surveys people leaving a football game about what they like to watch on TV. Explain why the following statement is misleading: "75% of people like to watch sports on TV."

What do we as consumers need to be aware of when reading graphs and statistics presented to us?

- Visual: things standout scale
- Data: where collected how much

Homework:
P. 718-721 #2-10, 12, 15-18