Chapter 1 Test

1. **Communication** A headline in a national newspaper on January 9, 2001, claimed "Kids around the world agree: Math teachers are nerds!" Researchers at Plymouth University asked 300 12- and 13-year-old students to draw pictures of mathematicians and they arrived at the conclusion in the headline.

(a) Do you agree with this headline? Why?

(b) Why do you think 12- and 13-year-old students may have felt this way?

2. **Knowledge and Understanding** During a nutrition survey, teenagers were asked to record the number of cans of pop they drank during a one-week period: 3, 5, 0, 7, 2, 3, 1, 2, 6, 3, 2, 4, 8, 4, 3, 5, 0, 2, 1, 3, 1, 6, 2, 5.

(a) Display the data using a bar graph.

(b) Is there a better way to display the data? Explain

3. Data were collected on the mass of a kitten, in kilograms, and its age in weeks.

Age (weeks)	1	2	3	4	5	6	7
Mass (kg)	0.8	1.1	1.2	1.4	1.5	1.5	1.7

(a) Construct a scatter plot of the data.

(b) Find the line of best fit.

(c) Predict the mass of the kitten when it is 10 weeks old.

(d) How would you describe the correlation?

4. Would you expect strong, weak, or no correlation if each of the following were investigated? Why?

(a) a person's age and blood pressure

(b) the amount of rainfall and the growth of vegetation

(c) automobile mass and fuel consumption in litres per 100 km

5. The numbers of points scored by a basketball team this season are recorded below.

45 71 55 62 57 68 62 48 52 60 59
75 51 49 57 56 54 63 55 67 61 58

(a) Construct a stem-and-leaf plot to display the data.

(b) Use the plot to determine the number of games where fewer than 55 points were scored.

(c) On what percent of games were more than 65 points scored?

(d) The basketball team must score more that 68 points to win the championship game. Considering the data above, how likely do you think this will happen? Explain.

6. **Application** From laboratory research, data were collected on "typical" cats.

Mass of Cat (kg)	1.22	1.54	1.26	1.19	1.23
Mass of Heart (mg)	772	837	761	910	691

(a) Use graphing technology to construct a scatter plot for the data and show the line of best fit.
(b) Find the equation of the line of best fit. How did you do this?
(c) Interpret the equation in part (b). What does it show?
(d) Can you use the equation in part (b) to make predictions?

7. **Thinking, Inquiry, Problem Solving** A political party claimed that taxes under the present government have doubled. It used the illustration in the margin to support the claim. Is it a fair representation of the claim? Why?

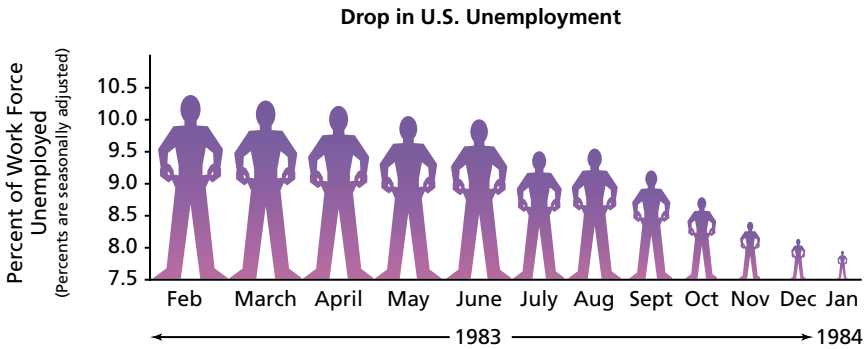
8. Consider the following sales data for Precore Flooring Inc.

	Jan	Feb	Mar	Apr	May	June
Carrie	$475	$515	$390	$550	$605	$590
Musinta	$530	$525	$580	$560	$540	$510

(a) Describe how you could create a display of the sales data to make it appear as if both salespeople have similar success.
(b) Describe how you could create a display that makes Carrie's sales look like they are increasing more than they really are.

9. Given the following coefficients of correlation, state what percent of variation in y is due to the variation in x.
(a) $r = 0.41$ **(b)** $r = 0.82$ **(c)** $r = -0.93$
(d) $r = 0.44$ **(e)** $r = -0.5$ **(f)** $r = -1.0$

10. Shown below is a creative-looking piece of art that compares data.
(a) Describe the impression that is given.
(b) Determine whether this impression is accurate.
(c) Describe how you might fix the graph so that it is more accurate.



Source: Forth Worth Star-Telegram, Feb 4, 1984