

## FUNCTIONS AS MATHEMATICAL MODELS

For the following relationships, sketch what you think would be a reasonable graph. Determine, if possible, the dependent variable, that is, which variable seems to be determined by the other variable. Put the dependent variable on the vertical axis and the other, the independent variable, on the horizontal axis. At this point we are only interested in the basic shape of the curve. Write a sentence or two to justify the shape or behavior of your graph.

1. The amount of money you earn on your part-time job and the number of hours you work.
2. The postage on a first class letter and the weight of the letter.
3. The number of people absent from school each day of the school year.
4. The temperature of an ice-cold drink left in a warm room for a period of time.
5. The amount of daylight each day of the year.
6. The cost of various pizzas of different diameters.
7. The population of the U.S. according to each census since 1800.
8. The height of a baseball after being hit into the air.
9. The speed of an egg dropped from the tenth floor of a building.
10. An individual's height as he ages.
11. The amount of money in a savings account over an extended period of time.
12. The number of bacteria in a culture over a period of time.
13. The volume of a box constructed from an 18" by 24" sheet of cardboard if congruent squares are cut from each corner and the resulting flaps are folded up to form an open box.