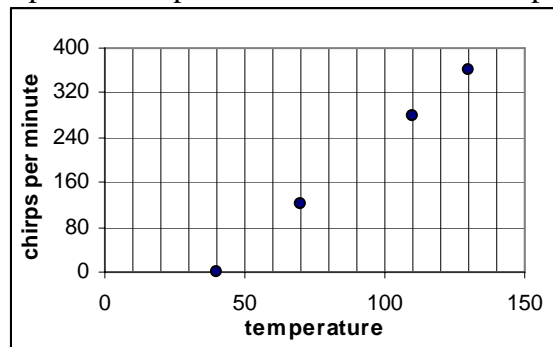LINEAR FUNCTIONS

1. The relationship between the tuition, T (in dollars), and the number of credits, c, at a particular college is given by

$$T(c) = \begin{cases} 100+120c & 0 \le c \le 6 \\ 800+120(c-6) & 6 < c \le 18 \end{cases}$$

A. What is the tuition for 6 credits?

B. If the tuition was $1880, how many credits were taken?

C. What is the domain of this function? The range?

D. What is the practical interpretation of the vertical intercept? Of the slope?

2. The rate at which crickets chirp can be expressed as a function of temperature.

A. Find the equation for the number of chirps per minute as a function of temperature.

B. What is the average number of chirps per minute when the temperature is between 40 and 100 degrees?

3. Sometimes linear relationships appear in surprising forms. Suppose the relationship between the weight, w, and the height, h, of a child can be expressed as $\ln w = \ln 2.4 + 1.84h$ where w is measured in kilograms and height is measured in meters for children between the ages of 5 and 13.

A. Sketch $\ln w$ as a function of h. What type of function do you see?

B. What is the height of a child weighing 30 kilograms?

C. Using algebra, find the relationship between w and h. What type of function is it?