1. The relationship between femur length and overall height in humans is a linear relationship.
a) Use the following Femur length/person's
height data points to derive the linear equation: (17 inches, 64 inches) and ( 21 inches, 72 inches)
b) What is the height of a person whose femur length is 14 inches?
2. A graph shows the linear relationship between the air temperature and the cadence of crickets chirping. The temperature/chirps per minute data pairs are given.
a. What is the equation that models chirps per minute as a function of air temperature?
b. How many chirps per minute will there be if the temperature is 90 F?

3. Over time, the capacity of the Conowingo Reservoir is decreasing at a constant rate.
a. What is the equation that models reservoir capacity as a function of time? b. In what year will the capacity by 100,000 acre-feet?
4. The cost of hiring a plumber, C , is a function of the time spent on the job, ' t ', in hours. If the plumber charges a fee of $\$ 20$ plus $\$ 29$ per hour:

the | Time (hours) | 0 | 1 | 2 | 3 | 4 |
| :--- | :--- | :--- | :--- | :--- | :--- |
|  | Cost (\$) |  |  |  |  |

a. What is equation that models this situation?
b. Fill in the table for this situation.
5. The following table defines the amount of snowfall as a function of elevation for a recent snow storm in upstate New York.

| Elevation (ft) | 1000 | 2000 | 3000 | 4000 |
| :--- | :---: | :---: | :---: | :---: |
| Snowfall (in.) | 4 | 6 | 9 | 12 |

a. Write an equation that models this situation.
b. What does the model predict the snowfall to be at an elevation of 5250 feet?

