Name

Height (inches) vs **Femur length (inches)**

Data points: (5'4"), (5'7"), (6'0")
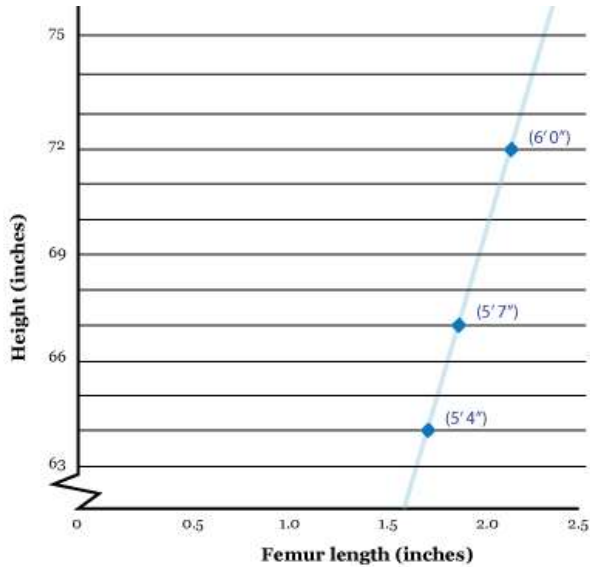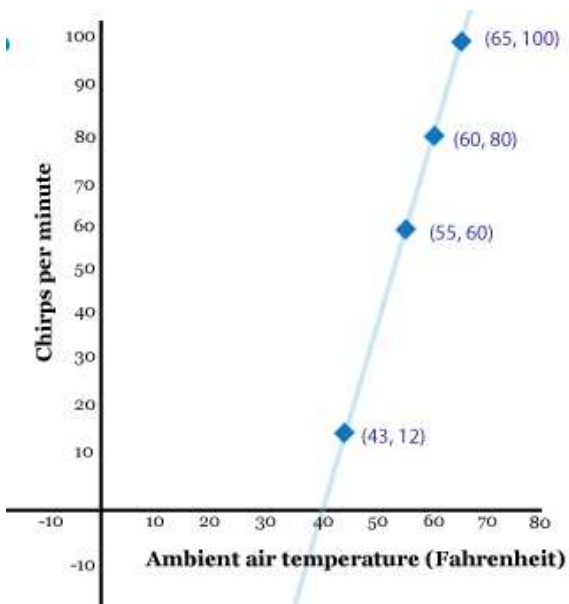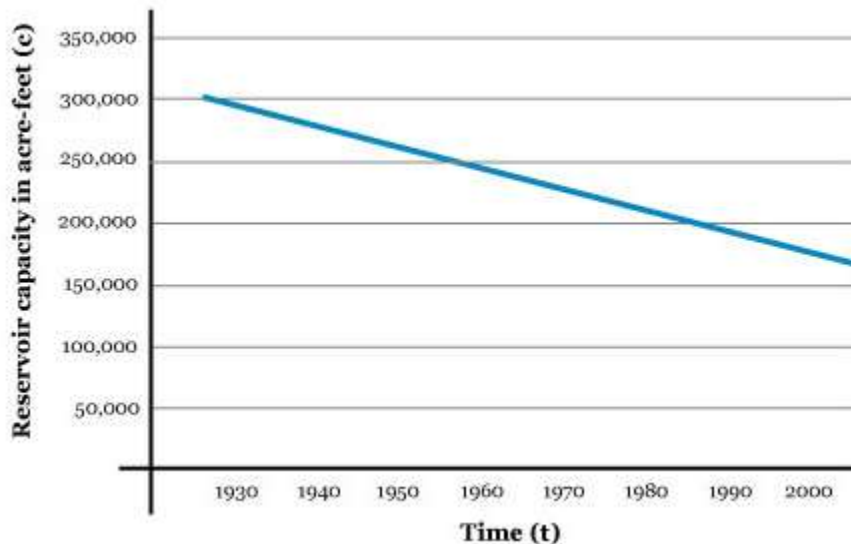
1. The relationship between femur length and overall height in humans is a linear relationship.
   a) Use the following Femur length/person's height data points to derive the linear equation: (17 inches, 64 inches) and (21 inches, 72 inches)
   b) What is the height of a person whose femur length is 14 inches?

Chirps per minute vs **Ambient air temperature (Fahrenheit)**

Data points: (43, 12), (55, 60), (60, 80), (65, 100)

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?

The graph shows Reservoir capacity in acre-feet (c) on the vertical axis, with values from 50,000 to 350,000, and Time (t) on the horizontal axis, with years from 1930 to 2000. A line decreases from about 300,000 in 1930 to about 170,000 in 2000.

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:

Time (hours)	0	1	2	3	4
Cost ($)					

   a.   What is the 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?

6) A small plane is descending to land at Ogden-Hinckley Airport. The table below gives his height above ground level as he descends.

Height (ft)	1500	1300	1100	900
Time (minutes)	0	2	4	6

a)   Write an equation of height as a function of time.
b)   How long after the plane starts to descend will it land?