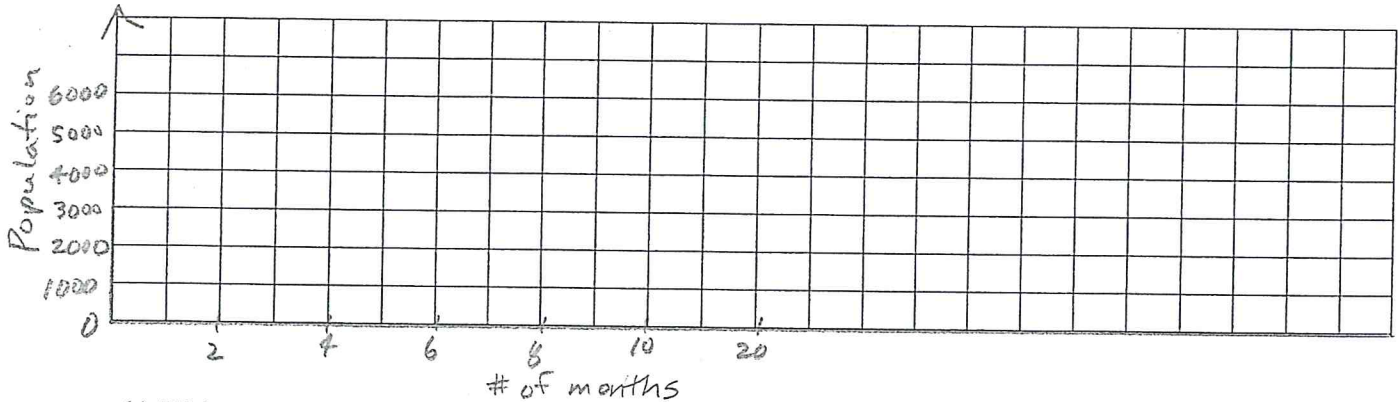


Applications of Sinusoidal Functions

Ex. The population of a caribou herd varies sinusoidally with a period of one year. The population is at a minimum at the beginning of the year when the population is about 4000 animals (note that $t = 0$ for the beginning of the year). The population is at a maximum of 6000 animals after 6 months which is at the end of June or the beginning of July.

a) Sketch the function



b) Write a sine or cosine function to model the number of caribou. Let N represent the number of animals and let t represent the number of months elapsed.

c) How many caribou are there expected to be at the end of the 7th month? Round your answer to the nearest 10.

e) Predict when there will be 4500 caribou. Mark the appropriate time on your sketch. (Solve graphically and algebraically)