

1. The population,  $P$ , of a bacteria colony has its growth modeled by a logistic function. At 8:01 AM, the colony population was 571. At 8:06 AM, the colony population was 606. The environment is such that the population of the colony must not exceed 1000.

a) Write the General Form of the Differential Equation, and write the General Form of the solution.

b) Find the value of  $C$ .

c) Find the value of  $k$ .

d) What will be the population at 8:20 AM?

2. Given a logistic function with the following ordered pairs:  $(0, 10000)$ ,  $(10, 20000)$ , &  $(20, 30000)$ .

a) Find  $k$ .

b) Find  $C$ .

c) Find  $L$ .