Trouts in Lake Fagnano

This is an individual assignment. Justify each one of your answers and hand in a clear and well written report to me.

Problem: Consider a population of trout that lives in Lake Fagnano (Tierra del Fuego, Argentina). Assume that the carrying capacity of the lake is 3 million individuals and its growth-rate coefficient is four hundredth. It is also known that the population reached 1 million individuals three years ago.

Use a Logistic Population Model to predict the number of fish in the lake ten years from now. Your answer should contain the following:

a. Definitions of each variable used with its units.

b. A complete qualitative analysis of the problem.

c. A complete analytic solution of the problem.

d. A clear idea about how to modify the model if fishermen harvest a tenth of the population annually.

e. A clear idea about how to modify the model if fishermen harvest 100,000 individuals annually.