1. (10 points) Use the approximate half-life formula to solve the following problem:

A clean-up project is reducing the concentration of a pollutant in the water supply, with a 3.5% decrease per week.

(a) (5 points) What is the half-life of the concentration of the pollutant?

(b) (5 points) What fraction of the original amount of the pollutant will remain when the project ends after 1 year (52 weeks)?

2. (10 points) Compare the doubling times found with the approximate and exact doubling time formulas. Then use the exact doubling time formulas to answer the following question:

A family of 100 termites invades your house and grows at a rate of 20% per week. How many termites will be in your house after 1 year?