Math 124C Winter 2001 **Name:** _____

Quiz #2

SHOW YOUR WORK

(10 points) Isobel is writing her master's thesis in Biology on a colony of rabbits in the Queen Charlotte Islands. The population reaches a maximum of 41 rabbits $2\frac{1}{2}$ years into the study. The population declines and then rises to another maximum of 41 rabbits $8\frac{1}{2}$ years into the study. The minimum population is 9 rabbits.

1. (4 points) Model the population of rabbits in the colony as a sinusoidal function $P(t)$, where t is the number of years after the study started.

2. (2 points) How many rabbits are there 8 years into the study?

3. (4 points) During the first year of the study, when are there 17 rabbits? (The first year is the time interval $0 \leq t \leq 1$).