



4. (2,2,4) In a particular environment both mice and rabbits are present. The population of mice can be modeled by the function  $M(t) = 1100e^{0.03t}$ , where  $t$  is years since 2009. The rabbit population in 2009 was 400, and the relative growth rate is four times the growth of the mouse population.

(a) Write a function,  $R(t)$ , which models the rabbit population for  $t$  years since 2009.

(b) According to the model, how many mice were present in 1990?

(c) Do the models predict that there will be more mice or more rabbits present in 2020? How many more?