

9. [6 points] The population,  $P(t)$ , of China, in billions, can be approximated by

$$P(t) = 1.267(1.007)^t,$$

where  $t$  is the number of years since the start of 2000.

- a. [2 points] Calculate the *continuous growth rate* of  $P(t)$ .

- b. [4 points] Using the limit definition of the derivative, write an explicit expression for the derivative of  $P(t)$  at the beginning of 2011. You do not need to simplify your expression.