Mathematics 122

Quiz #3 Name: Key

You must show your work to get full credit.

1. Solve the following:

(a) $41.3(5.2)^t = 107$. $t =$ .577418

$(5.2)^t = 107/41.3$

$t \ln(5.2) = \ln(107/41.3)$

$t = \ln(107/41.3)/\ln(5.2)$

(b) $100e^{.12t} = 500$. $t =$ 13.41198

$e^{.12t} = 500/100 = 5$

$.12t = \ln(5)$

$t = \ln(5)/.12$

2. A town had a population of 5,000 in 2005. Give a formula for the population, $P(t)$ of the town t years after 2005 if

(a) The population grows by 500 persons a year.

$P(t) =$ $5000 + 500t$

(b) The population grows by 10% a year.

$P(t) =$ $5000(1.1)^t$