Mathematics 122

Quiz #2 Name: Key

You must show your work to get full credit.

In the year 2000 the population of a town is 50,000.

1. Give a formula for the population, P, of the town in terms of t, the number years after 2000 if the population increases by 500 persons a year.

$P(t) =$ $50,000 + 500t$

2. Give a formula for the population, P, of the town in terms of t, the number years after 2000 if the population increases by 1% a year.

$P(t) =$ $50,000(1.01)^t$

3. Which of these predicts the larger population for the year 2010?

In the year 2010 $t = 10$ (#2 is larger)

In 1. $P(10) = 50,000 + 500(10) = 55,000$

In 2. $P(10) = 50,000(1.01)^{10} \doteq 55,231.1$ ← larger