

MAT 118 Problem Set 7

Problems.

Do the following problems from the textbook.

pp. 393-397. 35, 44, 47, 50

In addition, do the following problems which are not from the book.

1. The population of a growing town is estimated as follows, where population is counted in the thousands.

Year	2009	2010	2011	2012
Population (in thousands)	135.4	139.5	143.6	147.8

Assuming a linear growth model, find a formula for the population $P(t)$ (in thousands) in the year $2009 + t$, i.e., t years after 2009. Also state the first year in which the population is estimated to go above 165,000.

2. The population of bacteria in a Petri dish is observed as follows.

Minutes	0	10	20	30	40
Population	20	54	146	394	1063

Assuming an exponential growth model, find a formula for the population $P(t)$ after $10t$ minutes. Also find after how many minutes (expressed as a whole number multiple of 10 minutes) the population first exceeds 100,000 bacteria.