

Homework Sec 3.2 (Due: Tue, April 28, 2009)

Section 3.2 (p98) : 1, 2, 3, 14, 25

A. Separate variables and use partial fractions to solve the following IVP.

$$\frac{dx}{dt} = 4x(7 - x), \quad x(0) = 11$$

B. Suppose that as a certain salt dissolves in a solvent, the number $x(t)$ of grams of the salt in solution after t seconds satisfies the logistic equation $\frac{dx}{dt} = (0.8)x - (0.004)x^2$.

(a) What is the maximum amount of the salt that will dissolve in this solvent?

(b) If $x = 50$ when $t = 0$, how long will it take for an additional 50 g of the salt to dissolve?