

MTH 376

Homework 6

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Section 3.2

4. The amount of salt in the tank at time t equals

$$x(t) = \frac{-20,000,000}{(100+t)^3} + 20 + \frac{t}{5}$$

The concentration of salt at time t is equal to $\frac{x(t)}{100+t}$. We have to solve the equation

$$\frac{x(t)}{100+t} = .1,$$

which gives $t = 18.92$. (In this final step a computer or calculator might be helpful).

14. The alligator population in 2010 is estimated to be

$$p(40) = 187,500,$$

where

$$p(t) = 300e^{\frac{\ln(5)}{10}t}.$$