Name _____

Homework 23
Section 5.6

1. (5) A yam which is initially at 45°F is placed in an oven which is at 425°F. The rate of change is know to be -0.19, when t is measured in hours. How long (to the nearest minute) will it take for the yam to reach a temperature of 145°F?
   Recall Newton's Law of Cooling is $T(t) = C + (T_0 - C)e^{kt}$.

2. (4) An investment offers 6% annual interest, compounded quarterly. How long will it take the investment to reach triple its initial value?

3. (5) A company predicts that the demand D (in number of units) for an item is modeled by the function $D(t) = 4000 + 1500\ln(2t+1)$ where t is weeks after a new ad campaign begins. After how many weeks is demand predicted to reach to 9000 units?

4. (1,5) A certain population grows according to the function $P(t) = \dfrac{1800}{2 + 4\left(\frac{3}{2}\right)^{-t/5}}$ where t is measured in months.

   (a) What is the initial population?

   (b) How long will it take for the population to reach 500?