§11.4 Using the Power Property w/ Exponential Models to Predict

This section simply applies what we have learned in previous sections. Recall the following:

Example: Solve $3(2)^x = 15$

Recall, that in order to solve this equation we must apply the inverse in order to "get to" the variable. This section will require the same but via application. However, in this section we will start with a word problem and sometimes will have to model the problem before applying our solving skills.

Example: Write a function for the amount of money that a person makes *t* years after investing $12,500 at 8% interest compounded annually and then use the model to find out how many years it will take the investment to become $20,000. When will the investment double?(#2 p. 667 *Intermediate Algebra*, Jay Lehmann, 1st Edition)

Example: If there are 4×10^6 bacteria on a peach at noon on Tuesday and the bacteria divides into 2 bacteria every hour (on average). Write a function that describes the number of bacteria in millions ($x10^6$) are on the peach every hour after noon on Tuesday. Find f(24). Explain what $f^{-1}(8000)$ means and then find the value. ?(#10 p. 668 *Intermediate Algebra*, Jay Lehmann, 1st Edition)

Example: Timber harvests in Alaska have decayed at an approximately exponential rate from 471 million board feet in 1990 to 19 million board feet in 2007. Predict when the timber harvest will be 6 million board feet. ?(#15 p. 668 *Intermediate Algebra*, Jay Lehmann, 1st Edition) **Hint**: Use 1990 as the baseline year to create your model.

§11.4 p. 667 #1, 6, 13 & 20