

Classwork 14

Intermediate Algebra MTH 35

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Topic: Modeling with Exponential and Logarithmic functions

Name: _____

1. A certain bacteria population doubles every 4 hours. Initially there are 2000 bacteria in a colony.
 - (a) Find a model for the bacteria population after t hours.
 - (b) How many bacteria are in colony after 15 hours ?
 - (c) When will the bacteria count reach a million ?

2. In a particularly bad zombie outbreak in Freaktown, the population of zombies was 100,000 in 2050, and 300,000 in 2055. Assuming that the zombie population grows exponentially,
 - (a) Find a function that models the zombie population t years after 2050.
 - (b) Find the time require for the population to double.
 - (c) Predict the zombie population in 2075.

3. The half-life of strontium-90 is 28 years. How long will it take a 50-mg sample to decay to a mass of 32 mg.

4. After 3 days, a sample of radon-222 has decayed to 58% of its original amount.

(a) What is the half-life of radon-222 ?

(b) How long will it take the sample to decay to 20 % of its original amount ?