Name: _____ Date: _____

Exponential Growth and Decay Homework

1) A scientist is working with 750 grams of a radioactive material that has a half-life in hours. How much of the substance is left after four hours?

2) Ryan is saving for his college tuition. He has $2,550 in a savings account that pays 6.25% annual interest.

    a) Write an exponential equation describing this situation.   _____

    b) How much money will Ryan have in his account 6 years from now?

3) A used car was purchased for $12,329 this year. Each year the car's value decreases 5.5%.

    a) Write an exponential equation describing this situation.   _____

    b) What will the car be worth in 2022?

4) The number of mosquitoes at the beach has tripled every year since 1999. In 1999, there were 2,500 mosquitoes.

    a) Write an exponential model for this situation.   _____

    b) How many mosquitoes would you predict were at the beach in 2005?

5) Jeremiah owns a business. His first year he made $11,212, each of the following years his profit increased 12%.

   a) Write an exponential equation describing the situation.   _____

   b) What will he make in 20 years?

   c) How many years will it take to make over $200,000?

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6) Dianna just bought a home. She paid $240,000. She is able to pay 20% of the loan off each year.

   a) Write an exponential equation describing the situation.   _____

   b) What will she owe in 10 years?

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7) A radioactive material decays at a rate of 40% per hour.

   a) If we start with 80 grams of the substance, can you find a formula that models this rate of decay?   _____

   b) How much will be remaining at the end of 6 hours?