Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Chapter 5.1-2 Review***

1) George purchases an antique table for $430. The retailer said that the value of the table, V, will increase at rate of 7.5% every year, t.

a) Write a model of the value of the table **V**, after **t** years.

b) How much is the table worth after 5 years?

c) How many years will it take for the table to **double** in its value? Round to the nearest hundredth.

2) Karen purchases a home for $234,000 on January 1, 2008. Later that year, the housing market collapsed and the value of Karen’s home depreciated annually at a rate of 8.3% each year from 2008 – 2013.

a) Write a function that will model the value of Karen’s home **y** in terms of **t** where **t** is the number of years since 1/1/2008.

b) What will the value of Karen’s home be in 2013?

c) In what year will Karen’s home be worth 75% of what she paid for it?

3) Marcus is making plans to invest some money. He can invest $7500 into an account that pays 5.3% interest compounded monthly, or he can invest the money into an account that pays 4.95% interests compounded continuously. If Marcus is planning on leaving the money in the account for 5 years, which option should he choose? Show all of your work and answer in a **complete sentence** explaining your justification.

4) A population of 24 bears is released into the wild. The population is expected to grow exponentially at the same rate each year. After 5 years, there are 74 bears. Write an exponential function that models the bear population, B, as a function of t years.

5) You buy a new stereo for $1300 and are able to sell it 4 years later for $275. Assume that the resale value of the stereo decays exponentially with time. Write an equation that gives the stereo’s resale value V (in dollars) as a function of time (in years) since you bought it.

6) A deposit of $800 in an account that pays 2.65% annual interest compounded continuously has a balance of what after 5 years? What if the interest was compounded quarterly?

7) State whether each function represents an exponential growth or decay function. Then give its growth/decay factor respectively and growth/decay rate respectively.

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| --- | --- | --- | --- |
| Function | Growth or Decay | Growth/Decay Factor | Growth/Decay Rate |
| f(x) = 800(0.74)x |  |  |  |
| f(x) = 34(1.36)x |  |  |  |
| $$f\left(x\right)=\left(\frac{2}{5}\right)\left(\frac{9}{5}\right)^{x}$$ |  |  |  |
| $$f\left(x\right)=340\left(1.04\right)^{x}$$ |  |  |  |