**Exponential Growth Exponential Decay**

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* y is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* a is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* r is the \_\_\_\_\_\_\_\_\_\_\_\_ (expressed as a decimal)
* t is \_\_\_\_\_\_\_\_\_\_\_.

Note: The rate and time must be in the \_\_\_\_\_\_ units of measure.

**Words to look for...**

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| Exponential Growth: | Exponential Decay: |

**Compound Interest:**

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* y is the final or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* a is the original or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* r is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (expressed as a decimal)
* n is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* t is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Words to look for/Key values for “n”:**

Yearly/annually – \_\_

Semiannually – \_\_

Quarterly – \_\_

Monthly – \_\_

Weekly – \_\_

Daily – \_\_\_\_

**Compounding Continuously:**

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* y is the final or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* a is the original or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* *e* is the number *e* (\_\_\_\_\_\_\_\_\_\_\_\_\_\_approximately 2.718)
* r is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (expressed as a decimal)
* t is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Words to look for:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Rounding:**

\*When dealing with money, we round to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\* When dealing with people, products, bacteria or molecules, we round to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\*When solving for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, round to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ place.

\*When solving for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, round to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ place.

**Examples:**

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| **1.) A baseball cards value increases at a rate of 4% per year. If you purchased the card for $5, how much would it be worth in 20 years?** | **2.) In 7 years John wants to have $15,000 in an account that pays 10% interest compounded quarterly. How much should he deposit in to the account?** |
| **3.) Elizabeth deposits $500 into an account that pays 3.14% compounded continuously. How much interest will Elizabeth earn in 2 years?** | **4.) $500 is deposited in an account that pays 2% annual interest compounded continuously. Approximately how many years will it take for the account to reach $1,000?** |
| **5.) A town of 1,000 people is experiencing an increase in population due to several new business openings. If the population increases at a rate of 5% per year, approximately how many years will it take for there to be 20,000 people in the town?** | **6.) You paid $42,550 for a new car. If after 5 years the car is worth $30,000, at what rate does the car decrease?** |
| **7.) Brian would like to purchase a boat as a graduation present for himself. He deposits $5,000 into an account that pays 7.5% interest compounded quarterly. If Brian needs $50,000 in order to purchase the boat, how long will it take him to save enough money?** | |