**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 \_\_\_\_\_\_ unites of measure.

**Words to look for...**

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| Exponential Growth: | Exponential Decay: |

**Compound Interest:**

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* A is the balance or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* P is the principle or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* r is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (expressed as a decimal)
* n is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* t is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Key Values for n:**

Yearly/annually – \_\_

Semiannually – \_\_

Quarterly – \_\_

Monthly – \_\_

Weekly – \_\_

Daily – \_\_\_\_

**Compounding Continuously:**

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* A is the balance or ending amount
* P is the principle or starting amount
* *e* is the number *e* (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_approximately 2.718)
* r is the rate (expressed as a decimal)
* t is the time in years

**Rounding Situations:**

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

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

**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?** |