When applying logs to real-world situations, we will still use the same 4 formulas from Keeper # \_\_\_\_\_\_.

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| **Growth:** | **Decay:** |
| **Compound Interest:** | **Compounded Continuously:** |

In Keeper #\_\_\_\_ we were restricted to solving for the "starting" or "final" amounts because we didn't know how to solve with logs yet. Now, using logs, we can solve for all variables, including \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Rounding:**

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

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

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

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

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| **Example 1:** $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? | **Example 2:** 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? |
| **Example 3:** 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? | **Example 4:** 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? |