

7.4 Exponential Equations and Growth

M. Goodroe - Quantitative Skills and Reasoning

Key Terms:

Exponential Equation

Compound Interest Formula

Logarithm

Name: _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

You are given the principal in a bank account, a yearly interest rate, and the time the money is in the account. Assuming that no withdrawals are made and that the interest is compounded annually, compute the amount in the account after the specified time period.

1) \$6000, 7.5 percent, 1 year

2) \$3000, 4 percent, 3 years

Solve the problem.

3) John Lee's savings account has a balance of \$1509. After 9 years, what will the amount of interest be at 6% compounded annually? Round to the nearest dollar.

4) There are currently 60 million cars in a certain country, decreasing by 4.3% annually. How many years will it take for this country to have 31 million cars? (Round to the nearest year.)

You are given the population and the growth rate as of 2000 for a hypothetical country. Assume that the growth rate remains the same from year to year. Using an exponential function to model population growth, determine the size of the population in the specified year.

5) Population = 988 million, growth rate = 1.5 percent, year: 2012

Solve the equation for x.

6) $5^x = 20$

7) $3^x = 1000$

Solve the problem.

8) Rashid invested \$4000 at 10% compounded annually. How much will be in the account in 4 years? Round to the nearest cent.