

Algebra 2
Unit: Exponential and Logarithmic Functions
Section: Exponential Growth and Decay

Tutorial: Compound Interest

Screen 1

In this tutorial we will be discussing the compound interest formula and how it is used to find how much money is earned based on a given interest rate, principal amount, and time.

Screen 2

The general formula for compound interest is A of t is equal to p times the quantity one plus r divided by n to the n times t power.

A is the amount of money in an account after some t number of years.

P is the principal amount or the original amount invested.

R is the annual interest rate in decimal form.

N is the number of times the interest rate is compounded per year. Annually means once a year.

Semiannually means twice a year. Quarterly means four times a year. Monthly means twelve times a year. Daily means three hundred sixty five days a year.

T is the time in years that the money will be compounded.

Screen 3

Let's go through an example of using the compound interest formula. You invest four thousand dollars in a savings account in your bank with an interest rate of three point two percent compounded monthly. How much will you have in the account after four years?

The first step is to identify the variables.

A is your unknown or how much money will be in the account after four years.

P is the principal or four thousand dollars.

R is the annual interest rate of three point two percent. This is written as point zero three two as a decimal.

N is twelve since the interest is compounded monthly.

T is four years.

Next insert these values into the formula.

A of t is equal to four thousand times the quantity one plus point zero three two divided by twelve to the twelve times four power.

A of t is equal to four thousand times one point zero zero two seven to the forty eighth power.

A of t is equal to four thousand times one point one three eight.

A of t is equal to four thousand five hundred fifty two dollars and seventy cents.

Screen 4

Now, you try...

Work through this problem and check your work.

You invest \$3,200 in a savings account in your bank with an interest rate of 5.6% compounded quarterly. How much money will you have in the account after 10 years?

Answer: \$5580.44

Screen 5

Remember, the general formula for compound interest is A of t is equal to p times the quantity one plus r divided by n to the n times t power.