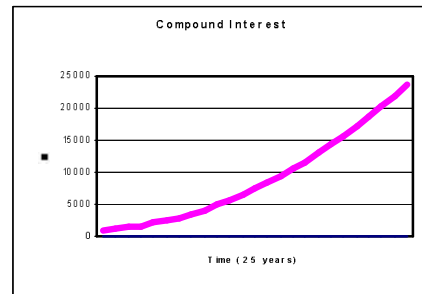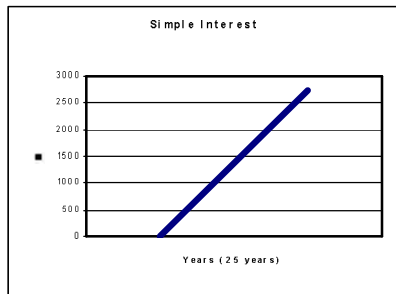# Compound Interest

INVESTIGATE: Comparing Simple and Compound Interest

How do the graphs compare:

1. How does compound interest grow relative to simple interest? _____

2. Identify the type of growth for each:

   - simple interest is _____

   - compound interest is _____

Compounding means generating earnings from previous earnings.

Compound interest is the amount of money earned on a principal investment/loan PLUS the amount of money made on the interest of the investment/loan.

 Get an explanation @
www.investopedia.com/video/play/what-is-compound-interest/#axzz2AGUGPaa5

A **compounding period** is the length of time over which compound interest is calculated.

Common compounding periods are:

TERM	NUMBER OF TIMES PER YEAR
annually	
semi-annually	
quarterly	
bi-monthly	
monthly	
semi-monthly	
bi-weekly	
weekly	
daily	

"I'd like a no-interest loan, since I have no interest in paying it back."

COMPOUND INTEREST FORMULA: $A = P\,(1 + i)^n$	A = the final amount of investment/loan
	i = the interest rate per compounding period
	$\qquad i = \frac{r}{C}$ $\qquad$ r = the annual interest rate
	$\qquad\qquad\qquad$ C = # of compounding periods/year
	P = the principal
	n = the number of compounding periods
	$\qquad n = Ct$ $\qquad$ t = the # of years
	$\qquad\qquad\qquad$ C = # of compounding periods/year

Example 1

Calculate the amount of money a $400 investment would make if it were invested at 5%, compounded quarterly for 2 years.

Example 2

Determine the amount of money invested at 2.45% for 3 years, compounded monthly if the final amount of the investment is $3500.

Example 3

   a. A $10 000 loan must be paid back in 5 years. It was borrowed at a rate of 3.9%, compounded semi-annually. Find its value at the end of the investment.

   b. How much interest must be paid on the loan?