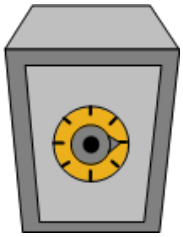
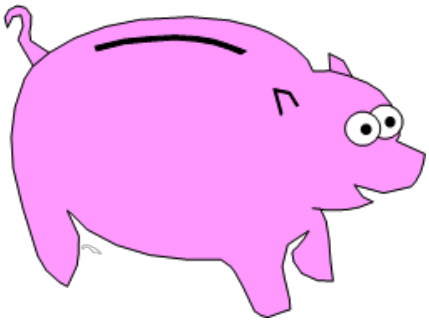


Simple & Compound Interest



SIMPLE INTEREST

Simple interest can be calculated using the following formula:

I=Prt

1. *I* is the amount of interest earned or due.
2. *P* is the principal.
3. *r* is the annual interest rate, expressed as a decimal.
4. *t* is the term of the investment or loan.

For an investment, you can calculate the **total value at the end** of the term using this formula:

$$A = P + I$$

1. *A* is the final value of the investment.
2. *I* is the amount of interest earned or due.
3. *P* is the principal.

Example: You would like to invest $5000.00 in an account that offers simple interest. Calculate how much the investment would be worth at each of the following rates and terms:

a) 3.00% per annum over a 2-year term;

b) 3.75% per annum over a 4-year term; and

c) 1.75% per annum over a 15-month term.

COMPOUND INTEREST

Compound Interest:

Compounding Period:

Investments can have different compounding periods:

•• interest calculated semi-annually has 2 compounding periods per year;

•• interest calculated quarterly has 4 compounding periods per year;

•• interest calculated monthly has 12 compounding periods per year; and

•• interest calculated daily has 365 compounding periods per year.

Compound interest is calculated using the following formula:

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

1. *A* is the final value of the investment (principal plus interest).
2. *P* is the principal.
3. *r* is the annual interest rate expressed as a decimal.
4. *n* is the number of compounding periods in a year.
5. *t* is the term of the investment or loan in years.

Example 1: Calculate the value of an investment of $5000.00 that earns interest at a rate of 2.95% per annum, compounded annually, for 3 years. Use a table to show the value of the investment at the end of each compounding period.

Interest Table			
Interest Period	**Investment value at beginning of period**	**Interest earned (I = Prt)**	**Investment value at end of period**
1			
2			
3			
4			
5			
6			

Example 2: Calculate the value of an investment of $5000.00 that earns interest at a rate of 2.95% per annum, compounded annually, for 3 years. Use the compound interest formula to verify your calculations.

Example 3: Calculate the final value of a deposit of $1000.00 invested at a rate of 2.80% per annum for 4 years, with the following compounding periods:

a) semi-annual;

b) quarterly;

c) monthly;