Savings Accounts, Simple and Compound Interest

For a 'high interest' savings account, where the owner can access the funds at any time, the interest rates tend to be between:

For a term investment, the owner must deposit the funds for a stated period, eg, 10 years. In that time the bank can use the money to invest. The bank can then offer a higher interest rate. The amount earned can be fixed (more security, lower interest) or left to the events of the market (it is possible to lose money over shorter periods of time, but left over longer periods of time the interest is generally higher).

Interest rates for investments can be anywhere between:

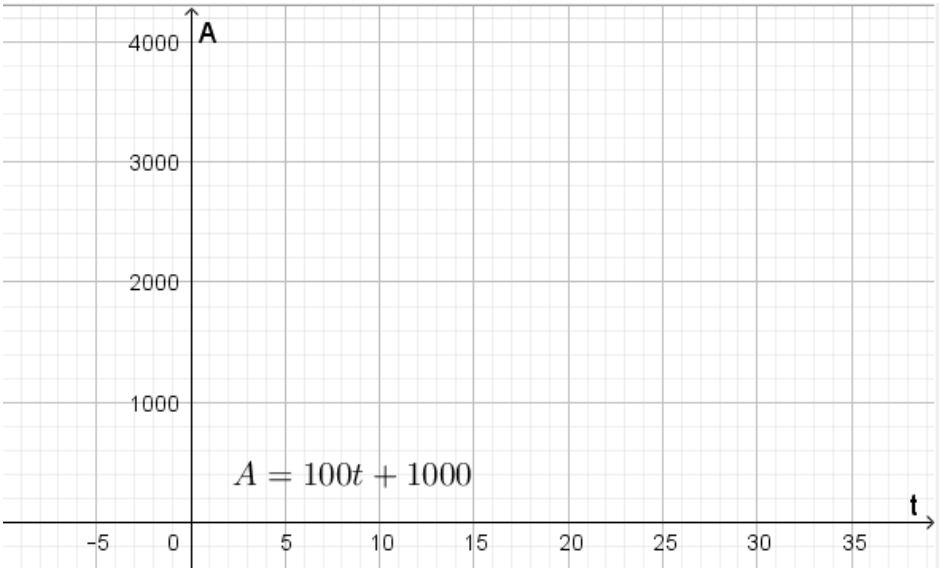
Simple Interest

The interest is calculated on the principle only. The interest is constant. The relationship between future value and time is linear:

Let the Present Value of an investment be $1000.

Let the rate of interest be 10%.

A simple interest model plays out as follows:



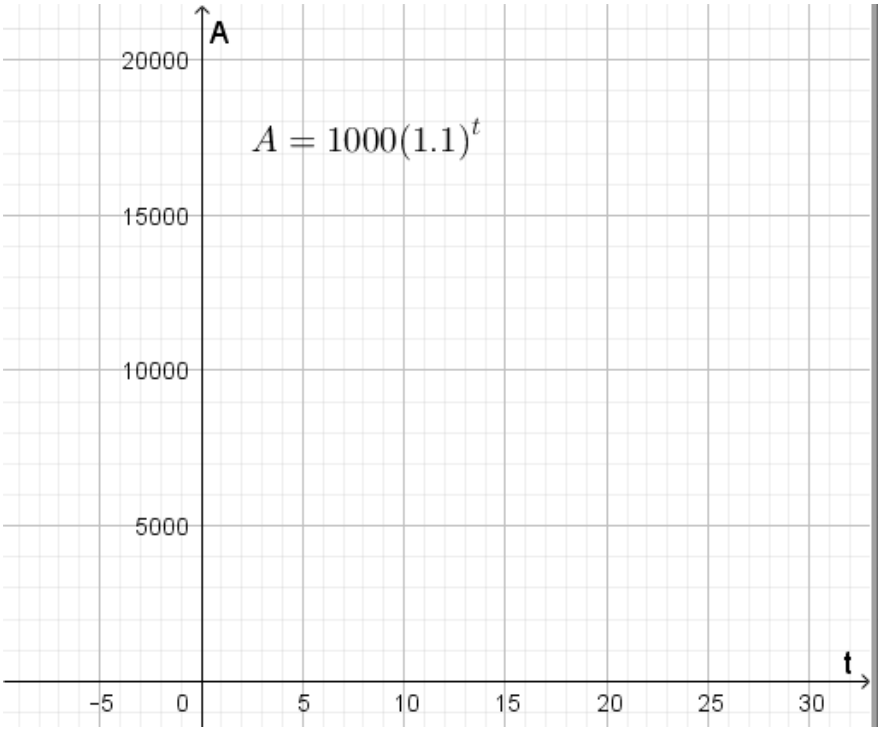
	A	B
1	0	1000
2	5	
3	10	
4	15	
5	20	
6	25	
7	30	
8		
9		
10		
11		

A simple interest model is useful if there is some reason to remove interest each year. For example, a non-profit organization has a trust fund that takes care of a $40 000,000 endowment. The interest on the endowment is 4%. They remove the interest each year to pay for operating costs. How much interest does the fund generate each year? How many salaries is that?

Compound Interest

Usually, interest is compounded – interest earns interest.

Let's recalculate the table, and plot the new points.



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Different Compounding Periods

Banks rarely add interest just once per year. The compounding period can be semi-annual, quarterly, monthly, weekly or daily.

Let's check out one year, P = $1000, r = 10%, with these compounding periods:

Compounding period	Times per year (n)	Rate ÷ n	r (decimal)	Calculation	Value at one year
Annual					
Semi-annual					
Quarterly					
Monthly					
Weekly					
Daily					

Formula and Examples: