



In Class Exercises (ICE) - 11/13/00

Compound interest is where the interest is added to your investment in installments during the year, rather than as one big interest payment at the end of the year. The installments are called compounds. For example, an investment where the interest is compounded monthly has the interest paid in twelve installments each year (one per month).

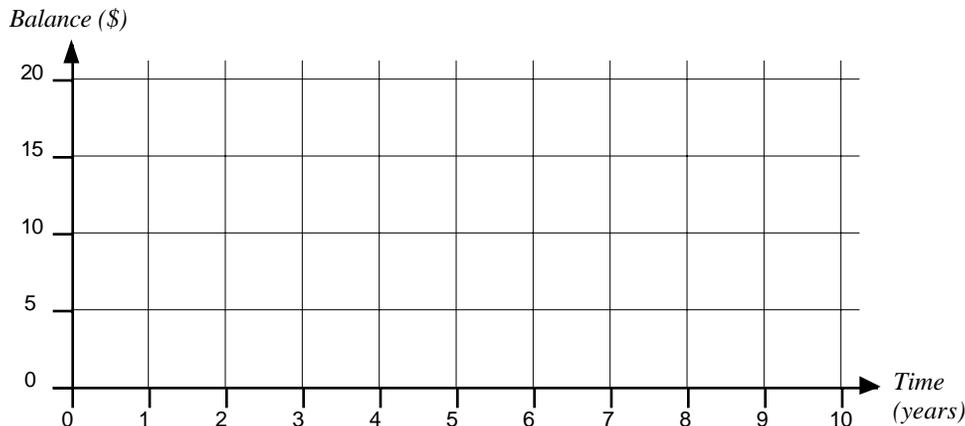
$$B = P * \left(1 + \frac{I}{n} \right)^{n*t}$$

- where : B is the balance of the bank account or value of the investment
 P is the principal, i.e. the amount initially invested
 I is the nominal interest rate (expressed in decimal form)
 n is the number of compounds per year
 t is the number of years that the investment has been going for

- **Use the compound interest formula with a principal of \$10 and a nominal interest rate of 10% to complete the table below.**

Number of Compounds (n)	Value after 1 year (t = 1)	Value after 10 years (t = 10)	Value after 100 years (t = 100)
1			
12			
1000000			

- **Use the axes provided to sketch the balance of the account as a function of time for the $n=1$ and $n=1000000$ cases.**



- *Find a formula to describe the $n=1000000$ case. What is the percentage growth rate from your formula ?*

- *The nominal interest rate was 10% (i.e. $I = 0.1$). What is the reason for the difference between this and your previous answer?*