

## PERCENT CHANGE

### Step 1

The rate of change (percent change, growth rate) from one period to another is calculated as follows:  
Percent Change = (value at end of period - value at beginning of period)/value at beginning of period \* 100

### Step 2

Another way of expressing the equation for growth rate or percent change is:  
Percent change =  $(V_{\text{present}} - V_{\text{past}}) / V_{\text{past}} * 100$

In this formula,  
 $V_{\text{present}}$  = present or future value  
 $V_{\text{past}}$  = past or present value

### Step 3

To further calculate an annual percentage rate of change, divide the percent change arrived at in step two by N.  
N represents the number of years between the two values used in step 2.

### Step 4

Example to calculate growth rate or percent change:  
A particular city has a population of 800,000 in 1990 and a population of 1,500,000 in 2008. To find the growth rate of the population in this city, do the following:  
Growth Rate =  $(1,500,000 - 800,000) / 800,000 * 100$   
Growth Rate = 87.5 percent

Average Annual Growth Rate =  $87.5\% / 18$  years  
Average Annual Growth Rate = 4.86 percent