

Excerpt from  
***Introduction to Real Estate Finance and Investment:  
Sample Problems, Student Edition, by Frank Gallinelli***

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## **Chapter 2: Compound Interest**

Compound interest differs from simple interest in one key respect: With compound interest you apply the interest rate not only to the original principal but also to the accumulated interest.

You can use the first formula below to calculate the Future Value, i.e., the original principal plus accumulated interest. You can also calculate the Future Value longhand, by stepping through one period at a time. Use the second formula to figure the total interest that accrues over time.

$$\text{Future Value} = \text{Principal} \times (1 + \text{Periodic Rate})^{\text{Number of Periods}}$$

$$\text{Total Interest} = \text{Future Value} - \text{Original Principal}$$

### **Problem 2-1:**

You take \$6,250 to the bank and deposit it in an account that pays 2% interest compounded annually. Use the longhand method to calculate what your account balance should be at the end of three years.

### **Problem 2-2:**

A second bank also pays 2% per year, but they compound it quarterly. You pull your money out of the first bank at the end of the third year there, and put the full proceeds into the second bank. Use the first formula above to calculate how much you will have after your money has been in the old bank for three years and the new bank for three more years.

### **Problem 2-3:**

How much interest did you earn after three years in the first bank?

### **Problem 2-4:**

If you had put \$6,250 in each bank for one year, how much more interest would you have earned in the second bank because of its more frequent compounding?