

Simple Interest, Compound Interest, and the Rule of 72

Simple Interest

What's simple interest? Well, it's pretty much like it sounds (simple). All you do is take the amount of money you're investing (the principal) times the interest rate times the number of years you're investing for. The formula is:

$$\text{Simple Interest} = P \times R \times T$$

So, if you have \$100 and you're putting it in the bank for 10 years at a simple interest rate of 6%:

$$\text{Simple Interest} = \$1000 \times .06 \times 10$$

Simple Interest = \$600 ... which means you would earn \$600 in interest. Simple, right?

Compound Interest

Ok, now things get a little more complicated. Compound interest basically means you're earning interest on your principal AND your interest. It just keeps building and building. If you put money in the bank and just leave it there, you'll end up earning compound interest. Here's the formula:

$$\text{Compound Interest} = P \times (1 + R)^T - P$$

So, if you put that \$100 in the bank for 10 years at a compound interest rate of 6%:

$$\text{Compound Interest} = \$1000 \times (1.06)^{10} - \$1000$$

$$\text{Compound Interest} = \$1000 \times (1.7908) - \$1000$$

Compound Interest = \$790.80 ... which means you would earn \$790.80 in compound interest.

As you can tell, you end up with more interest when you use compound interest. In this example, you end up with an extra \$190.80!

Rule of 72

Compound interest can get a little complicated, but there's an easy way to figure out how long it will take for your money to double using compound interest. It's called the Rule of 72 ...

Take 72 and divide it by the interest rate (as a whole number, not a percent) ... and that tells you how many years it will take for your money to double. Really.

This works no matter how much money you invest. Here's an example:

I invest \$500 at 8% compound interest. How long until my money doubles?

$72 \div 8 = 9$... so it takes 9 years for your money to double at 8% compound interest.

Don't believe me? Use the formula:

$$\text{Compound Interest} = \$500 \times (1.08)^9 - \$500$$

Compound Interest = \$500 ... which is the same as you invested, so you doubled your money.

OK ... take a breath and then try a few problems on the back.

Problems

1. Simple Simon puts \$750 in the bank at a simple interest rate of 4%. How much interest will he earn in the first year?

After 5 years?

2. Bill Dindough buys a 2-year CD at a compound interest rate of 6%. He puts \$900 into the CD. How much interest will he earn?
3. May Kinmoney decides to invest \$8000 in a bond that pays a compound interest rate of 9%. How many years would May have to invest in this bond for her to double her money?
4. If May decides to leave her money invested in the bond (see #3 above) for 20 years, how much interest would she earn?

Challenge Problem (note: the same rules apply, even though the situations sound a little different)

5. Frank buys a new 60" Plasma TV for \$2000 from Bigazz TVs on credit at an interest rate of 22%. They have a deal where you don't have to make payments for 5 years (but interest still adds up). How much compound interest would add up on his purchase over those 5 years?

Hopefully, the answer to #5 scares you a little about the dangers of using your credit card too much. The interest can easily end up becoming more than your original purchase in just a few years.