



## Compounded Interest Sheet

**Definition:** *“Interest that accrues on the initial principal and the accumulated interest of a principal deposit, loan or debt. Compounding of interest allows a principal amount to grow at a faster rate than simple interest, which is calculated as a percentage of only the principal amount”* (Investopedia.com).

“The more frequently interest is added to the principal, the faster the principal grows and the higher the compound interest will be. The frequency at which the interest is compounded is established at the initial stages of securing the loan. Generally, interest tends to be calculated on an annual basis, although other terms may be established at the time of the loan” (Investopedia.com).

<http://www.thecalculatorsite.com/finance/calculators/compoundinterestcalculator.php>

### **Examples:**

Scenario one:

Savings per month: \$20

Age: 19 (to 65)

Interest rate: 8%

Principal: \$11,040

Accrued over time: \$115,259

Scenario two:

Savings: \$20

Age: 25 (to 65)

Interest rate: 8%

Principal: \$9,600

Accrued over time: \$70,286

**Difference: \$44,973**

Scenario three:

Savings per month: \$20

Age: 19 (to 65)

Interest rate: 8%

Principal: \$9,600

Accrued over time: \$70,286

Scenario four:

Savings: \$100

Age: 25 (to 65)

Interest rate: 8%

Principal: \$48,000

Accrued over time: \$351,428

**Difference: \$281,142**

Scenario five:

Savings per month: \$100

Age: 25 (to 65)

Interest rate: 8%

Principal: \$48,000

Accrued over time: \$351,428

Scenario six:

Savings: \$200

Age: 25 (to 65)

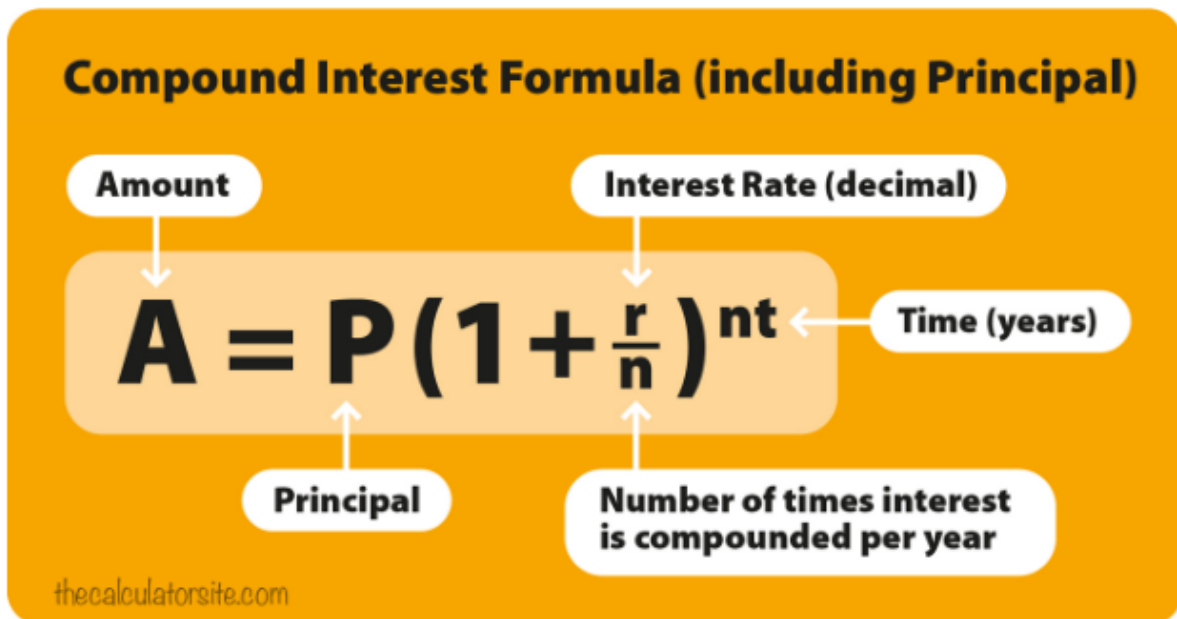
Interest rate: 8%

Principal: \$96,000

Accrued over time: \$702,856

**Difference: \$351,428**

## Annual compound interest formula



The formula for annual compound interest, including principal sum, is:

$$A = P \left(1 + \frac{r}{n}\right)^{nt}$$

Where:

**A** = the future value of the investment/loan, including interest

**P** = the principal investment amount (the initial deposit or loan amount)

**r** = the annual interest rate (decimal)

**n** = the number of times that interest is compounded per year

**t** = the number of years the money is invested or borrowed for

Note that this formula gives you the future value of an investment or loan, which is compound interest **plus** the principal. Should you wish to calculate the compound interest only, you need this:

$$\text{Total compounded interest} = P \left(1 + \frac{r}{n}\right)^{nt} - P$$