

# Compound interest(ing)

“Compound interest is the eighth wonder of the world. He who understands it, earns it. ... He who doesn't ... pays it.”

- Albert Einstein

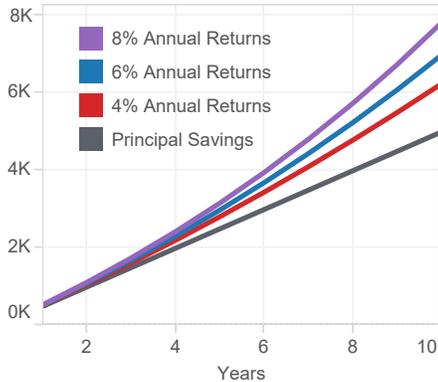
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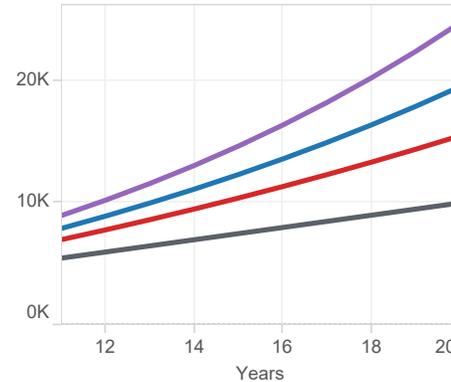
Simply put, compound interest is when the returns on your savings generate additional returns. This powerful snowball effect can help you meet future financial goals.

Assume that \$500 is saved at the start of each year (similar results are achieved by saving \$42/month). Three different annual rates of return are shown below at 10-year intervals over 30 years. Notice how principal savings (amount invested) becomes a smaller fraction of total balance over time—this is the power of compound interest.

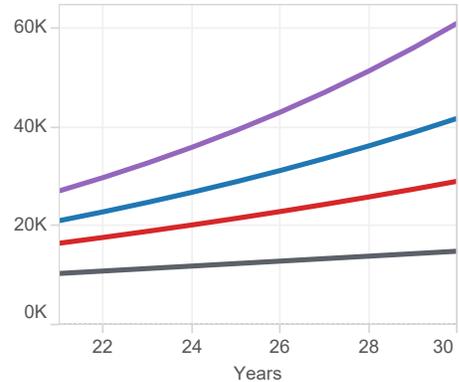
## Years 1-10



## Years 11-20

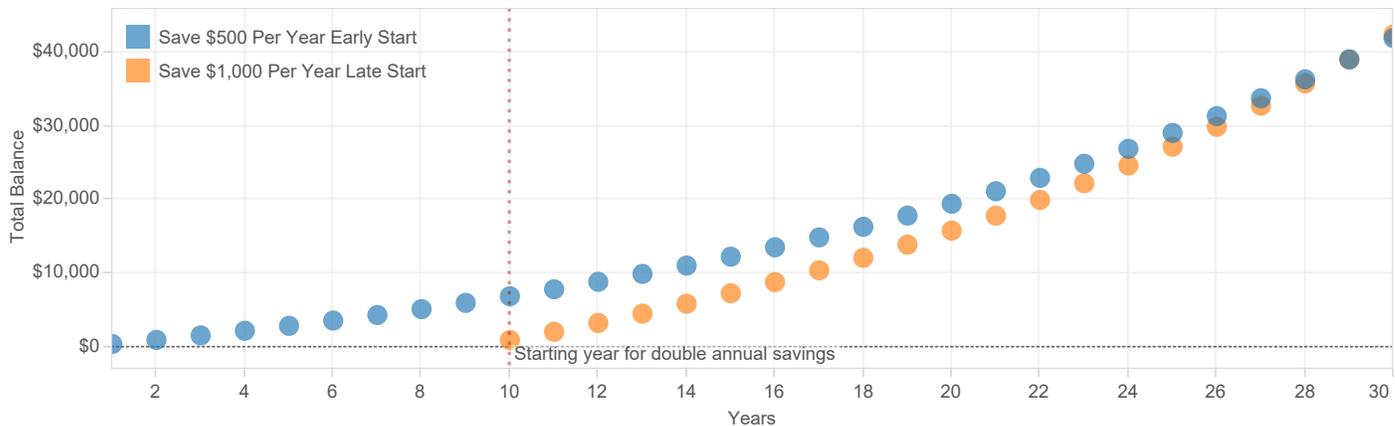


## Years 21-30



## Can you make up for lost time by saving more?

Yes, but the price is steep! If you delay saving for 10 years but commit to save twice as much, it would take about 19 years at 6% annual returns to fully catch up.



## The Rule of 72 explained

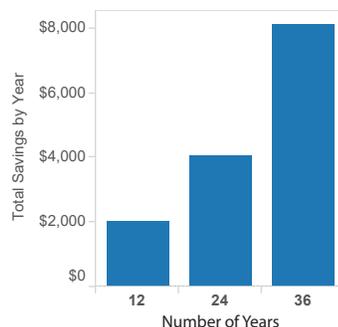
This rule serves as a guide to approximate the number of years it takes for your savings to double. Divide 72 by an expected annual rate of return. The higher the rate of return, the fewer years it takes to double-up.

Years	1.50%	3%	6%	12%
0	\$1,000	\$1,000	\$1,000	\$1,000
6				\$2,000
12			\$2,000	\$4,000
18				\$8,000
24		\$2,000	\$4,000	\$16,000
30				\$32,000
36			\$8,000	\$64,000
42				\$128,000
48	\$2,000	\$4,000	\$16,000	\$256,000

## Rule of 72 example

\$1,000 of initial savings doubling every 12 years at 6% annual return. It doesn't matter how much you start with—the doubling effect is still the same!

Example for 6% return:  $72/6 = 12$ ; your initial savings amount would double about every 12 years.



## Reasons to save early and often

**Inflation:** inflation is the force that increases the price for goods and services over time. Historically, this has averaged about 3% per year in the U.S. In other words, if you aren't at least keeping up with inflation with your savings rate, your real purchasing power decreases over time.

**Major purchases or expenses:** You may be planning for education or a car. Eventually you will probably be saving for a house and retirement. Saving allows you to benefit from compound interest to help pay for these things. Borrowing money for large expenses means you are on the wrong side of compound interest!

Remember, the habit of saving is ultimately more important than the amount you save! Building good saving habits while you are young is vital to a life of financial freedom.