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VIDEO

Compound Interest & the Rule of 72

What + Why: Learn how compound interest accelerates money growth and how to quickly estimate when investments double.

Understanding Growth Over Time

Money doesn't just grow because you add to it. Over time, growth can begin to build on itself. Understanding how that happens, and how long it takes, can change the way financial goals are planned.

Let's Meet Asha

Asha works part-time at a clothing store while she is in school studying fashion design. On the side, she creates original clothing designs and sells them locally at a shared boutique. In three years, she wants to launch her first full online collection. Based on her calculations, she needs \$15,000 to cover startup costs and to have enough products ready for her online launch. Asha currently has \$1,000 saved. She decides to invest it and add \$350 each month for the next three years.



Goal: \$15,000 in 3 Years

Initial Savings: \$1,000

Monthly Investment:
\$350

ASHA: I considered leaving my money in my savings account to earn 3% interest each year. Because my money isn't invested and tied to the stock market, it would be protected and the balance wouldn't go down. I could also withdraw it anytime I needed to. But the growth would be slow. Because I have only three years to reach my goal of \$15,000, I decided to invest in a stock market fund that has historically averaged about 8% growth per year. That doesn't mean I'll earn 8% every year. Some years could be higher. Some years could be lower, or even negative! But with only three years, I need my money to have a chance to grow faster.

**Savings Account:**

- 3% interest
- Balance won't decrease
- Easy access
- Slower growth

Stock Market Fund:

- 8% average growth per year
- Growth can vary
- Can lose money
- Potential for faster growth

NARRATOR: After Asha's first investment year, she is surprised to find that her money earned more interest than she expected.

ASHA: I knew I would earn interest on the principal, which is the amount of money I originally invested. I also factored in earning interest on the money I added each month. But I didn't realize that once interest is added to my account, it starts earning interest too. That's compound interest. With compound interest, the next month's interest is calculated on my new, higher balance. That means I'm earning interest on my money AND on the interest I've already earned.



Original Investment: \$1,000

Monthly Investment: \$350

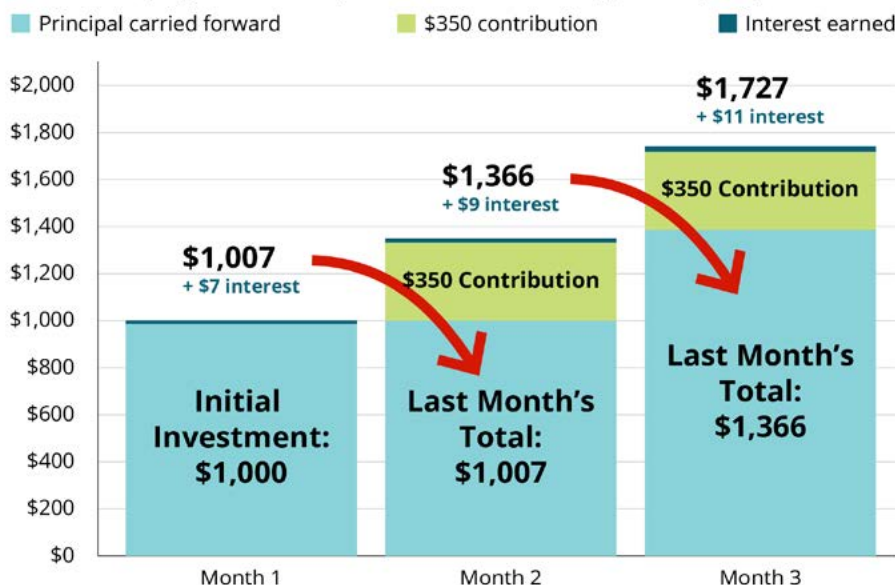


NARRATOR: Here's a quick look at her compound interest. In month one, Asha contributes the \$1,000 she's saved. She earns \$7 in interest, bringing her new balance to \$1,007. That \$1,007 becomes the starting balance for the next month. In month two, Asha makes her first \$350 contribution. Her balance continues to grow. She earns \$9 of interest and her total is now \$1,366.

By month three, the balance has grown even more. Asha makes her \$350 contribution again, and she earns \$11 in interest for a total of \$1,727. Notice the pattern. The interest amount increases each month. That's because each time interest is added, the balance grows, and the next interest calculation is based on that larger balance. This is compound interest in action.

Compound Interest

\$1,000 starting balance, \$350 contribution per month
(begins Month 2), 8% Annual Percentage Rate (APR).



Over the first two years, Asha's investment has averaged an 8% annual growth. Seeing how compound interest accelerates over time makes her wonder: If she left her money invested even longer, how much more could it grow? Could it eventually help her open a small storefront?

ASHA: Two years into my investing plan I have \$10,300! Wow! This is going great. Maybe I should think bigger than an online boutique. If I could double my money, I would have enough to open my own small retail location. I wonder how long that will take?



NARRATOR: To estimate how long her investment would take to double in size, Asha can use a shortcut called the Rule of 72. The Rule of 72 works by dividing 72 by the annual interest rate. If Asha's investment averages 8% growth per year, 72 divided by 8 equals 9. That means her money would take about 9 years to double. Keep in mind that this calculation doesn't include Asha's \$350 contribution per month. Asha would reach her goal much faster if she continues to contribute to her investments each month.

The Rule of 72

- $72 \div \text{Interest Rate} = \text{Years to Double}$
- $72 \div 8 = 9$
- About 9 years to double

ASHA: Nine years is longer than I want to wait to launch a small storefront. But it helps me see that if I keep investing, even after I launch an online boutique, my money could eventually double. That means opening a small storefront doesn't have to happen right away. It could be my next goal.



NARRATOR: Although year three of Asha's investment brought in only a 4% return, she was still able to reach her \$15,000 goal on time!

Asha's Balance Over 3 Years

\$350 contribution per month, 8% APR years 1-2, 4% APR year 3.

Principal carried forward Annual contribution (\$4,200) Interest earned



Question 1

Which statement best explains compound interest?

- ☐ a. Interest is earned only on the original amount deposited.
- ☐ b. Interest is calculated on the current balance, including previously earned interest.
- ☐ c. Interest is added only when new money is deposited.
- ☐ d. Interest stays the same amount every month.

Answer: b. Compound interest is interest earned on the principal and on previously earned interest. As interest is added to the balance, the amount used to calculate the next interest payment increases.

Question 2

What does the Rule of 72 help you estimate?

- ☐ a. The dollar amount your investment will earn in interest
- ☐ b. The level of risk in an investment
- ☐ c. The amount you should deposit each month
- ☐ d. The number of years it will take for an investment to double

Answer: d. The Rule of 72 is a formula used to estimate how many years it will take for an investment to double.

Question 3

Dylan wants to know how long it will take to double his \$15,000 investment, which earns a 5% annual return. Which expression correctly applies the Rule of 72?

- ☐ a. $72 \div 5$
- ☐ b. 72×5
- ☐ c. $15,000 \div 72$
- ☐ d. $15,000 \times 72$

Answer: a. The formula for the Rule of 72 is 72 divided by the interest rate. The result is the number of years it will take Dylan's investment to double. 72 divided by 5 means that Dylan's investment would double in approximately 14 and a half years.

Key Terms

- **principal:** the amount of money originally invested
- **compound interest:** the interest a person earns on today's money that will compound (add to) the amount of money that will earn interest later