

## Lesson 3: Rule of 72

### GOALS:

- Apply the Rule of 72 to solve problems and explain its limitations.

The Rule of 72 is a financial term that states that gives a quick estimation of how long it takes an amount of money to double in value. In order to find the number of years required to double your money you simply divide 72 by the given compound interest rate. The result is the approximate number of years that it will take for your investment to double.

$$N = \frac{72}{I\%}$$

Where  $N$  is the number of years it takes the investment to double in value and  $I\%$  is the annual compound interest rate.

### Example 1

Use the Rule of 72 to determine how long it will take to double your money at 12% compound interest,

$$N = \frac{72}{12} = 6 \text{ years}$$

The formula can also be manipulated to calculate the interest rate needed if you want the investment to double in value in a set period of time (years).

$$I\% = \frac{72}{N}$$

### Example 2

Use the Rule of 72 to calculate the interest rate needed in order to double the value of an investment in 10 years.

$$\text{Interest rate} = \frac{72}{10} = 7.2\%$$

By the way, the Rule of 72 applies to anything that grows at a compound rate, including population. For example if a country's population is growing at a rate 3% per year, the population would double in approximately  $\frac{72}{3}$  or 24 years.

### Example 3

An investment earns 4% interest compounded annually. If Makena invests \$8000, use the Rule of 72 to estimate how much money he'll have in 36 years.

$$\begin{aligned} \text{Time to double } \$8000 &: \frac{72}{4} = 18 \text{ years} \\ 18 \text{ years} &: \$16,000 \\ 36 \text{ years} &: \$32,000 \end{aligned}$$