



# THE RULE OF 72

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**By Vibhuti Marolika**

Have you heard of the rule of 72? It is a rough rule of thumb that tells you how long it will take for your money to double, given a particular interest rate. You might be wondering where this rule come from. This worksheet will help you understand the logic behind it.

Let's assume you start with an initial amount "A" and an interest rate of "R". School math's teaches you that to find the number of years "N" that it takes to double your money, you need to solve the equation:

$$2 \times A = A \times (1 + R)^N$$

You can cross out the A's and then do some algebra

$$2 = (1 + R)^N$$

Taking the natural log of both sides

$$\ln(2) = \ln(1 + R)^N$$

$$0.69314 \dots = N \times \ln(1 + R)$$

Now  $\ln(1+R) \approx R$  when R is small and close to 0. So, if therefore this thumb rule works well only for small interest rate and starts to break down for high interest rates.

$$0.69314 \dots \approx N \times R$$

$$N \approx \frac{0.69314 \dots}{R}$$

But R is percentage value, so we multiply by 100.

$$N \approx \frac{0.69314 \dots}{r} \times 100$$

$$N \approx \frac{69.314 \dots}{r}$$

Notice that after deriving the formula, we end up with 69.3, not 72. Although 69.3 is more accurate, it is not easily divisible. Therefore, the Rule of 72 is used for the sake of simplicity because it is easily divisible by 2, 3, 4, 6, 12, 24, etc.

$$N \approx \frac{72}{r}$$


The rule of 72 offers a useful shortcut. It's a simplified version of a logarithmic calculation that involves complex functions like taking the natural log of numbers. It is an approximation and therefore it doesn't work for all interest rates. For example, if you took an interest rate of 72%, the rule says it will take 1 year to double – but logically that is incorrect.


We hope this worksheet have help you understand where this rule of 72 come from and why it works in certain situation and not in others. Please share your feedback with us, we would love to hear from you.

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