MATH: Two Ways to Double Your Savings

Compound interest has been said to be the 8th wonder of the world and math is a beauty in itself! In this activity, you will practice calculating how many years it will take to double a given amount of money in various savings accounts in two different ways: using logarithms and using the Rule of 72.

Math Topics	Personal Finance Topics
• Solving Exponential Equations with Logarithms • Change of Base Log Rule • Compound Interest	• Savings accounts • Compound Interest • Rule of 72

Part I: Interactive Examples

These two videos provide information on how to solve the compound interest equation using logarithms and Rule of 72. Follow your teacher's directions on which video(s) you should watch or skip ahead to the next section.

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Part II: Practice Problems

Complete the following practice problems and show your work in the space provided. Then, write your final solution in the answer boxes.

Question 1	Answer
Ren sets aside $1,000 into an online savings account with an annual interest rate of 2.3%, compounded annually. How long will it take for the money in his account to double? Round to the nearest year.	

Question 2	Answer
Sid saves $8,000 into a savings account earning 4.5% interest. How long will it take to double Sid's savings?	

Question 3	Answer
Donnesh puts $5,000 into a savings account with a 10% interest rate. How long will it take to double the initial amount?	

Question 4	Answer
Niko wants to double his initial savings amount of $7,500 within the next 15 years. Using the Rule of 72, what annual interest rate does Niko need to narrow his search down to when looking for different savings accounts?	

Part III: Reflection

5. Of the two methods (Logarithms vs Rule of 72), which method will ONLY work for doubling the initial amount and which method will work for any result amount?

6. Brainstorm 3 other ways the Rule of 72 can be used to calculate growth.

Part IV: BONUS

8. The table below shows the calculations for the Rule of 72, with different interest rates (at the top) and how long it will take for it to double (the shaded rows across).

Years	1.5%	3%	6%	12%
0	$10,000	$10,000	$10,000	$10,000
6	*In times of historically low interest rates, it's especially important to start investing early*			$20,000
12			$20,000	$40,000
18				$80,000
24		$20,000	$40,000	$160,000
30				$320,000
36			$80,000	$640,000
42				$1,280,000
48	$20,000	$40,000	$160,000	$2,560,000

Describe the relationship that you see from the Rule of 72 example above.