

AW Math 11

DAY 4 Rule of 72 class notes

Rule of 72:

To find the **find the time it takes to double your investment:**

$$T = \frac{72}{R} \text{ or } R = \frac{72}{T}$$

R is the annual interest rate expressed **as a percent (R not 'r')**
 T is the time for the investment to **double**

HOW TO Use the Rule of 72

1. Leave the interest rate **as a percent**
2. Divide 72 by the interest rate
3. This is the time it will take for the investment to double

Remember to use the steps!

1. Write your formula
2. Write your 'knowns'
3. Insert your 'knowns'
4. Solve algebraically (do the opposite)

EXAMPLE 1 Finding the Doubling Time

Approximately how long will it take an investment of \$5000.00, invested at a rate of 3.75% per annum, compounded annually, to double in value?

$R = 3.75\%$

$$T = \frac{72}{R}$$

$$T = \frac{72}{3.75} = 19.2 \text{ years}$$

\$5000 → \$10 000

EXAMPLE 2 Finding the Interest Rate

If you wanted to double your money in **10 years**, at what interest rate would you need to invest your money?

$$R = \frac{72}{T} \quad T = 10$$

$$R = \frac{72}{10} \quad R = 7.2\%$$

Assignment pg 17-18

DAY 4 *Rule of 72 assignment*

1. Use the Rule of 72 to estimate **how long** it would take the following investments to double in value:
 - a. \$6000.00 invested at 4.00% per annum, compounded annually
 - b. \$1000.00 invested at 2.45% per annum, compounded annually
 - c. \$1000.00 invested at 1.95% per annum, compounded annually

2. If you wanted to double your money in 15 years, at what **rate of interest** would you need to invest your money?

3. Using $I = Prt$, calculate the **amount of simple interest earned** and the **final value** of each of the following investments.
 - a. \$400.00 @ 1.25% per annum for 8 years

 - b. \$750.00 @ 2.75% per annum for 5 years

 - c. \$1000.00 @ 4.50% per annum for 10 years

4. An investment offers a rate of 2.80% per annum, compounded annually.

Use the Rule of 72 to determine about how long it will take for the value to double. Round your answer to the **nearest whole year**.

5. Extra, if time...

Can you use simple interest to calculate compound interest? Use the table to show how much a deposit of \$1000.00 invested at 3.85% per annum compounded semi-annually for 2 years, would be worth at the end of each compounding period.

↳ every 0.5 year

INTEREST TABLE			
Interest period	Investment value at beginning or period	Interest earned $(I = Prt)$	Investment value at end of period
1	1000	$I = (1000)(0.0385)(0.5)$ $I = 19.25$	1019.25
2	1019.25		