**1.1 / 1.2 - Simple Interest**

 **Important Concepts:**

**1) Converting % values to decimal values – *Divide the % value by 100 to get a decimal***

 *Write each percent as a decimal.*

1. 73.4% = \_\_\_\_\_\_\_\_\_ d. 0.79% = \_\_\_\_\_\_\_\_\_
2. 12.5% = \_\_\_\_\_\_\_\_\_ e. 6. 25 % = \_\_\_\_\_\_\_\_\_
3. 8.7% = \_\_\_\_\_\_\_\_\_ f. 2.9 % = \_\_\_\_\_\_\_\_\_

**2) Solving for a variable – *add/subtract/multiply/divide in order to get your variable by itself***

*Solve for each variable.*

1. 

 

1. 

 

1. 

 

1. 





**3) Time periods – *Understanding how each length of time is represented in terms of a year***

**\*Note:** 1 year = 365 days

 52 weeks

 12 months

*Write each length of time as a fraction of a year*

1. 5 months = 
2. 7 wk = 
3. 23 days = 

**Important Concepts Continued:**

**4) Understanding Important Vocabulary – *Defining Simple interest and Principal***

*Write the definition of each term.*

1. **Simple Interest:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. **Principal:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**5) Understanding and Using the Simple Interest Formula**

Money you invest or borrow can/will earn interest.

To calculate the simple interest earned on an investment or loan use:

Interest (I) **=** Principal (P) **x** interest rate (r) **x** time (t)

* **Simple Interest Formula: **

**I =** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (interest accrued after **t** years)

**P =** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (the **initial amount** you borrow or deposit)

**r =** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (must be written as a **decimal** – not a %)

**t =** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (the length of the investment **in years**)

**6) Calculating the TOTAL amount of an investment – *Principal + Interest***

To calculate the total **amount** of an investment use:

Amount (A) **=** Principal (P) **+** Interest (I)

* **Total Amount: **

**7) Using the Formula – *For any Simple interest problem, follow these 3 steps:***

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**IMPRORTANT:**

1. For simple interest calculations, your interest rate (r) must be expressed as a **decimal**.
2. If your time period is **NOT** expressed in years – YOU must express it as a fraction in years.

**Example 1:**

A) Luke saved $600 last year. He invested it for 6 months at an annual interest rate of 1.5%. How much interest will Luke earn on his investment?

**\*Note: Unless the investment period is given in years, you must convert the given value\***

**Identify your variables: P = \_\_\_\_\_\_\_\_\_\_\_, r = \_\_\_\_\_\_\_\_\_\_\_% t = \_\_\_\_\_\_\_\_\_\_\_ I =\_\_\_\_\_\_\_\_\_**

 **r =\_\_\_\_\_\_\_\_\_\_\_**

Formula: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 

Interest Earned (I) = \_\_\_\_\_\_\_\_\_\_\_\_\_

B) What is the total amount of Luke’s investment after 6 months?

Formula: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 

Total Amount: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Example 2:**

David is completing his tax form. He invested $1200 for 1 year and earned $30.24 in simple interest. He cannot remember the interest rate? What was the interest rate on David’s investment?

**Identify your variables: P = \_\_\_\_\_\_\_\_\_\_\_, r = \_\_\_\_\_\_\_\_\_\_\_\_\_ t = \_\_\_\_\_\_\_\_\_\_\_ I =\_\_\_\_\_\_\_\_\_**

Formula: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Interest Rate (r) = \_\_\_\_\_\_\_\_\_ x 100% = \_\_\_\_\_\_\_\_%

**Practice: Simple Interest Problems**

**1.** A) Match each variable with a value B) Use the values in part (A) to calculate the interest earned (I). Is the interest that was given in the table correct?

**Formula:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| **Variable**PrincipalInterestrate time  | **Value**280 d1.95%$2000$29.92 |

This interest was correct: Y / N

C) What is the total amount at the end of the investment?

**Formula:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Total Amount:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2.** Stephen is saving to buy a used boom lift for his tree-trimming business. He needs $9800. He has saved $9475. He plans to invest his savings at an annual rate of 1.59%. How long must Stephen invest to earn the additional $325 in interest he needs?

**Identify your variables: P = \_\_\_\_\_\_\_\_\_\_\_, r = \_\_\_\_\_\_\_\_\_\_\_\_\_ t = \_\_\_\_\_\_\_\_\_\_\_ I =\_\_\_\_\_\_\_\_\_**

Formula: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Length of investment: \_\_\_\_\_\_\_ yrs **x** 365 days/yr **=** \_\_\_\_\_\_\_ days

Rounding to the nearest day ≈ \_\_\_\_\_\_\_ days

Length of investment: \_\_\_\_\_\_\_ yrs and \_\_\_\_\_\_\_ days.

**3.** Dan is an RV service technician. He invested $3200 in a savings account 2 years ago. The interest rate was 0.8%. He wants to spend the entire investment fixing up an RV to sell. How much does Dan have to spend?

**Total Dan has to spend**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4.** Graham needs to purchase a line-striping machine for his painting business. He has saved $4200. He invested his savings in a 9-month term savings account. At the end of the term, his investment had earned $51.26 in simple interest. What was the annual interest rate on Graham’s investment? Round to the nearest hundredth of a percent.

**Annual Interest Rate: \_\_\_\_\_\_\_\_\_\_ %**

**5.** Holly earned $48.74 in interest on money in a savings account. She invested her principal at an annual rate of 2.3% for 17 weeks.

A) How much money did Holly invest?

**Holly invested:** \_\_\_\_\_\_\_\_\_\_\_\_

B) About how long will it take for Holly’s investment to be worth a total of $7000?

Remember: 

Identify your variables:

A = \_\_\_\_\_\_

P = \_\_\_\_\_\_

r = \_\_\_\_\_\_

t = \_\_\_\_\_\_

**Length of time to reach $7000**: \_\_\_\_\_\_\_\_\_\_\_ yrs ≈ \_\_\_\_\_\_\_\_\_\_ yrs

**6.** Renée runs a hair salon. She was saving for new salon chairs. She earned $75.25 in simple interest on a 3-year investment. The interest rate was 2.4%.

A) How much did Renée invest?

 **Renée invested:** \_\_\_\_\_\_\_\_\_\_\_\_

B) How much did she have to spend on new chairs?

**Total to spend:** \_\_\_\_\_\_\_\_\_\_\_\_