**1.1 Simple Interest**

**By the end of the lesson you will be able to:**

1. Define “simple interest” and “rate of return”
2. Solve problems that involve simple interest

**Interest** is the amount of money \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on an investment or \_\_\_\_\_\_\_\_\_\_\_\_\_\_ on a loan.

**Simple interest** is the interest earned or paid based on the principal and the simple interest rate.

**Principal** is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ amount of money borrowed or invested.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the percentage of a sum of money charged for its use.

**Term** is the contracted \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_ for an investment or loan.

**Maturity** is the contracted end date of an investment or loan.

🡪 Note: Simple interest is determined *only* on the principal of an investment

🡪Note: Since the interest is paid at the end of each period, the growth is not \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Formula for finding the simple interest:

I = Interest

P = Principal

r = annual interest rate (as a \_\_\_\_\_\_\_\_\_\_\_\_\_ )

t = time in years

A Guaranteed Investment Certificate or GIC is a Canadian investment that offers a guaranteed rate of return over a fixed period of time.

**Example 1** Nathan invested a $3000 guaranteed investment certificate (GIC) at 1.5% simple interest, paid annually, with a term of 5 year.

How much interest has he earned after a year?

How much interest would be made at maturity of the investment?

**Future Value** (A) is the amount an investment will be worth after a specified period of time.

Formula for finding the future rate:

A = P + I

A = P + Prt



|  |  |
| --- | --- |
| Year | Future Value of Nathan’s Loan |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |

Graph Nathan’s value of investment

 

🡪Note: Simple intrested earned over time is a \_\_\_\_\_\_\_\_\_\_\_\_ function.

🡪Note: Since the interest is paid at the end of each period, the growth is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Example 2** Caitlin is a co-op student. She invested her work-term earnings of $10 000 at 4% simple interest, paid annually. She intends to use the money in a few years to take a dream vacation.

How long will it take to grow to a future value of $12 000?

**Rate of return** is the \_\_\_\_\_\_\_\_\_\_ of money that is earned (or lost) on an investment relative to the amount of money invested. This is generally expressed as a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

$$Rate of return= \frac{interest earned}{amount invested}$$

What is Catlin’s rate of return?

**Example 3** Both Paul and Mike earned the same amount of interest on their respective simple interest investments, $400. Mike invested at 2.05% for 10 years. Paul invested at 3.1% for 6 years. Mike claims he made a better investment. Is there any truth to Mike’s claim?

Practice: p

