NOTES 1.2: Exploring Compound Interest

***Lesson Focus:*** To compare simple interest with compound interest.



* with simple interest, you apply the interest rate to the principal alone
* with compound interest, you apply the interest rate to the ***sum*** of the principal and any accumulated interest
* previously earned interest is reinvested over the course of the investment



* we will compare the effect compounding has on the value of an investment

**e.g.** A bank offers two types of savings bonds:

Regular Savings Bond which pays simple interest at 5% per year.



Compound Savings Bond which pays interest at 5% per year compounded annually.



Suppose a $1000 bond was bought of each type with a maturity of 10 years.

a) Complete the table below for the Regular Savings Bond.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **Value at Start of Year ($)** | **Interest Earned ($)** | **Accumulated Interest ($)** | **Value at End of Year ($)** |
| 1 | 1000.00 |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |
| 4 |  |  |  |  |
| 5 |  |  |  |  |
| 6 |  |  |  |  |
| 7 |  |  |  |  |
| 8 |  |  |  |  |
| 9 |  |  |  |  |
| 10 |  |  |  |  |

b) Complete the table below for the Compound Savings Bond.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **Value at Start of Year ($)** | **Interest Earned ($)** | **Accumulated Interest ($)** | **Value at End of Year ($)** |
| 1 | 1000.00 |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |
| 4 |  |  |  |  |
| 5 |  |  |  |  |
| 6 |  |  |  |  |
| 7 |  |  |  |  |
| 8 |  |  |  |  |
| 9 |  |  |  |  |
| 10 |  |  |  |  |

c) Graph the data from the tables above on the grid below. Do not connect the points.



d) What happens to the values of the investments as time progresses?



e) When are the returns from the simple and compound interest the same? Why?

