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| --- |
| An **annuity** is a series of equal payments made at regular intervals. In an **ordinary simple annuity**, payments are made at the end of each compounding period. The **amount of an annuity** is the sum of the regular deposits plus interest. |

***EXAMPLE 1 – a) Using a Table***

Suppose $450 is deposited at the end of each quarter for 1 year in an investment account that earns 10% per year compounded quarterly.

a) What is the amount of the annuity at the end of 1 year?

b) How much interest does the annuity earn at the end of 1 year?

**Solution:**

**i = 10%/1 year ÷4 = 0.025 n = 1 year x 4 = 4 periods**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Quarter** | **Starting Balance** | **Interest Earned (0.025)** | **Deposit** | **Ending Balance** |
| **1** | **$0.00** | **$0.00** | **$450.00** | **$450.00** |
| **2** |  |  |  |  |
| **3** |  |  |  |  |
| **4** |  |  |  |  |
|  | **Total** |  |  |  |

**Jan – Feb – Mar – Apr – May – Jun – Jul – Aug – Sep – Oct – Nov – Dec**

***b) Using a Formula***

The ***AMOUNT*** of an ordinary simple annuity is given by the formula , where

***A = i =***

***R = n =***

This formula can only be used when the ***payment interval is the same as the compounding period***

1. What is the amount of the annuity at the end of 1 year?

**Type:**

***A = ?***

***R =***

***i =***

***n =***

The ***INTEREST*** of an ordinary simple annuity is given by the formula , where ***I*** is interest amount

1. How much interest did the annuity earn at the end of 1 year?

**PRACTICE**



1. Determine the future value of each annuity:

a) $800 is invested at the end of each month for three years into an account that pays 2.5% per year, compounded monthly.

b) $450 is deposited quarterly for five years into a fund that pays 4.75% per year, compounded quarterly.

2. Determine the future value and the interest earned of each annuity.

c) $800 is deposited biweekly for six years into a fund that pays 3.25% per year, compounded biweekly.

d) $1400 is deposited semi-annually for two years into a fund that pays 7.5% per year, compounded semi-annually.