Calculating Ordinary Interest

Two ways for calculating Ordinary interest

1) By formula.
2) By 6% for 60 days method.

If the number of days is given, the days should be expressed as a fraction of a year. When calculating the ordinary interest \( I \) by the Banker’s Rule, the formula becomes:

\[
I = Pi \left( \frac{t}{360} \right) = \frac{Pt}{360}
\]

Example 3
Find the ordinary interest on €500 at 18% for 30 days.

Example 4
Find the ordinary interest on €1 at 6% for 60 days.

Example 5
Find the ordinary interest on €139.20 at 6% for 60 days.

Example 6
Find the ordinary interest on €1,392 at 6% for 70 days.

Example 7
Find the ordinary interest on €1,392 at 9% for 70 days.

Example 8
Find the ordinary interest on €324 at 5% for 40 days.

Calculating Exact Interest

Let \( I_e \) denote the exact simple interest. When the number of days is given the following formula is used:

\[
I_e = Pi \left( \frac{t}{365} \right) = \frac{Pt}{365}
\]

Example 9
Find the exact interest on €500 at 18% for 30 days.

The Relationship between \( I \) and \( I_e \)

\[
\frac{I}{I_e} = \frac{\frac{Pt}{360}}{\frac{Pt}{365}} = \frac{365}{360} = \frac{73}{72}
\]

If the answer to Examples 3 and 9 are compared

\[
I_e = 7.397
\]
\[
I = 7.50
\]

Thus,

\[
\frac{I}{I_e} = \frac{7.50}{7.397} = \frac{73}{72}
\]
Finding the Amount

The amount is the sum of the principal and interest, or
Amount = Principal + Interest

Let $S$ denote the amount (or the sum). The formula below is based on this definition.

$$S = P + f$$
$$S = P + Pin$$
$$\Rightarrow S = P(1 + in)$$

Example 1

a) What is the simple interest on €700 for 125 days at 10%?
b) What is the amount? (Use the Banker’s Rule)

Example 2

A man borrows €500 for four months at 9%. How much must he repay?

Example 3

On May 24, 1999, Joan Harrison borrowed €650 and agreed to repay the loan together with interest at 12% in 90 days. What amount must she repay?