3.1:  Simple Interest

Simple interest is generally only used on short-term loans (1 year or less).

Principal: Amount of money on which interest is earned.

Interest: Cost to borrow money.

<table>
<thead>
<tr>
<th>Simple Interest:</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ I = Prt ]</td>
</tr>
</tbody>
</table>

where

\[ P = \text{principal} \]
\[ r = \text{annual simple interest rate (written as a decimal)} \]
\[ t = \text{time in years} \]

The future value, \( A \), (the amount of money after simple interest accrues) is given by

\[ A = P + Prt = P(1 + rt). \]

Example 1: Your car needs repairs, but you are short on cash. Uncle Albert has agreed to loan you $500, but you have to pay it back with interest. How much will you owe Uncle Albert after 5 months at 9% simple interest?

Example 2: How much should you invest so that you will receive $1000 after 10 months at 10% simple interest?
Example 3: You put $10,000 into a short-term simple interest account for 180 days. After that time, the bank pays you $10,150. What was the interest rate?

Example 4: You are due to receive a tax refund of $685. The IRS generally takes 10 days to electronically deposit the tax refund check after a tax return is filed electronically. Instead of waiting patiently, you utilize a “rapid refund” tax service. In addition to the $29.95 tax preparation fee, 24 Hour Tax Services charges $40 for a 24-hour refund anticipation loan. The company gives you an instant check for $615.05, and you sign away your rights to your tax refund. What interest rate would you pay?