1. Explain how compounding interest is different than simple interest. (1 mark)

Comp. interest is calculated and added on every time you compound. Investment grows faster.

2. Find the simple interest for each of the following. Round to the nearest cent. (6 marks)

<table>
<thead>
<tr>
<th>Interest</th>
<th>Principal</th>
<th>Rate</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>$22.46</td>
<td>$1,100</td>
<td>3.5%</td>
<td>7 months</td>
</tr>
<tr>
<td>$784.13</td>
<td>$8,500</td>
<td>2.05%</td>
<td>4.5 years</td>
</tr>
<tr>
<td>$23.15</td>
<td>$10,000</td>
<td>1.3%</td>
<td>65 days</td>
</tr>
</tbody>
</table>

3. Julia has two years to save $3,800 for her wedding. She has $10,000 from her grandmother that she can use to invest in a financial institution.

a) Calculate the interest rate she requires to earn enough for her wedding. (2 marks)

\[ r = \frac{I}{P} = \frac{3800}{10000} = 0.38 = 38\% \]

b) Assuming the best rate Julia can get is 2.25%, how many years will it take to earn the $3,800? (2 marks)

\[ t = \frac{I}{Pr} = \frac{3800}{10000 \times 0.0225} = 16.89 \text{ yrs} \]
4. A principal of $3,000 is invested for four years at 3% compounded monthly. Calculate the interest earned. (2 marks + 1 mark for interest)

\[ P = 3000 \]
\[ r = 0.03 \]
\[ t = 4 \]
\[ n = 12 \]
\[ nt = 48 \]

\[ A = 3000 \left(1 + \frac{0.03}{12}\right)^{48} \]

\[ \frac{3000}{3381.98} \]

\[ \text{Interest} = 381.98 \]

5. A principal of $13,500 is invested for six years at 2.75% compounded weekly. Calculate the interest earned. (2 marks + 1 mark for interest)

\[ P = 13500 \]
\[ r = 0.0275 \]
\[ t = 6 \]
\[ n = 52 \]
\[ nt = 312 \]

\[ A = 13500 \left(1 + \frac{0.0275}{52}\right)^{312} \]

\[ \frac{13500}{15921.11} \]

\[ \text{Interest} = 2421.11 \]

6. Recalculate the interest earned on $8,500 invested for 4.5 years at an annual rate of 2.05%. Compound the interest monthly. Remember that the compound interest formula gives you A (amount in account). (3 marks)

\[ P = 8500 \]
\[ r = 0.0205 \]
\[ t = 4.5 \]
\[ n = 12 \]
\[ nt = 54 \]

\[ A = 8500 \left(1 + \frac{0.0205}{12}\right)^{54} \]

\[ \frac{8500}{9320.70} \]

\[ \text{Interest} = 820.70 \]