1. You deposit $2000 in the bank. Find the simple interest earned if the interest rate is 3% and you leave it in the bank for 10 months. (2 marks)

\[ I = P \times r \times t = 2000 \times 0.03 \times \left(\frac{10}{12}\right) = \$50 \]

2. Calculate the total in your bank account at the end of a year if you deposit $5000 at an interest rate of 2.5%. (2 marks)

\[ A = P \left(1 + \frac{r}{n}\right)^{nt} = 5000 \left(1 + \frac{0.025}{2}\right)^{2 \times 1} = 5125 \text{ in account.} \]

3. A friend said they put $10,000 in the bank and one year later had earned $900 in interest.

a) Calculate the interest rate required to earn $900 interest. (3 marks)

\[ r = \frac{I}{P \times t} = \frac{900}{10000 \times 1} = 0.09 = 9\% \]

b) Is it possible to get this kind of interest rate? Comment. (1 mark)

No, too high. Savings is at most 2%. 

4. You invest $4,000 into a credit union for five years. The interest rate is 3.75%, compounded semi-annually. Calculate the interest earned. (3 marks)

\[ A = P \left(1 + \frac{r}{n}\right)^{nt} = 4000 \left(1 + \frac{0.0375}{2}\right)^{2 \times 5} = \$4816.55 \text{ total} - \$4000 = \$816.55 \text{ interest} \]
5. The same $4,000 is deposited into an account earning the same interest rate (3.75%), compounded daily! Calculate the interest earned after 5 years. (3 marks)

\[
I = P \left(1 + \frac{r}{n}\right)^{nt} - P
\]

\[
P = 4000, \quad r = 0.0375, \quad t = 5, \quad n = 365, \quad nt = 1825
\]

\[
I = 4000 \left(1 + \frac{0.0375}{365}\right)^{1825} - 4000 = 824.87
\]

6. You inherit $5,000,000 and invest it at an interest rate of 2%. How many years will it take you to double your investment? (1 mark)

Rule of 72 = \frac{72}{2} = 36 \text{ years}

7. Why is the stock market considered a high risk investment and a savings account a low risk investment? (1 mark)

Risk of loss is high.

8. On July 1, Skip makes a purchase of $1,100 on his mastercard. The purchase appears on his monthly statement issued July 12. Skip does not pay for the purchase by the due date indicated on the July statement. His next monthly statement is issued August 12. His credit card charges him an annual interest rate of 19.49%. Calculate the interest added to his August statement for the purchase. (3 marks)

\[
I = Prt \quad \text{vs} \quad A = P \left(1 + \frac{r}{n}\right)^{nt}
\]

\[
P = 1000, \quad r = 0.1949, \quad t = \frac{43}{365}, \quad n = 365, \quad nt = \frac{43 \times 365}{365}
\]

\[
I = 1000 \times 0.1949 \times \frac{43}{365} = 25.26
\]

\[
A = 1000 \left(1 + \frac{0.1949}{365}\right)^{1100} - 1100 = 1125.54
\]

\[
\text{PMT} = \frac{1125.54 - 25.26}{1000} = 25.54
\]
9. Sally wants to borrow $6,700. A bank is offering Sally two loan options.

Option 1: A 3-year loan has an annual interest rate of 6.75%.
Option 2: A 6-year loan has an annual interest rate of 6.75%.

a) Calculate Sally's monthly loan payment if she chooses the 3-year loan with a rate of 6.75%. (2 marks)

\[ \frac{6700}{1000} \times 30.76 = \frac{206.09 \text{ per month}}{} \]

b) Calculate Sally's monthly loan payment if she chooses the 6-year loan with a rate of 6.75%. (2 marks)

\[ \frac{6700}{1000} \times 16.93 = \frac{113.43 \text{ per month}}{} \]

c) Compare the total interest paid with the 3-year loan and the 6-year loan. Which loan will cost her more in interest? How much? (3 marks)

\[ \begin{align*}
\text{3 year} & \quad \text{vs} \quad \text{6 year} \\
206.09 \times 36 & = 7419.24 \\
113.43 \times 72 & = 8166.96 \\
\text{diff} & = \frac{747.72 \text{ more for 6 year loan}}{}
\end{align*} \]
You are purchasing a Panasonic TV and have two payment options: Cash or Installment Plan.

a) Complete the tables below to compare paying cash to paying in installments: (3 marks)

<table>
<thead>
<tr>
<th>Panasonic TV – Paying Cash</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sticker Price</td>
</tr>
<tr>
<td>$1659</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panasonic TV – Paying in Installments (taxes included in price)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money Down</td>
</tr>
<tr>
<td>$200</td>
</tr>
</tbody>
</table>

b) What is the carrying charge (extra) when paying by installment? (1 mark)

$125.33

c) Calculate the percent interest rate you are paying if you “borrow” money from the store instead of paying cash. (2 marks)

\[
\text{I} = 125.33 \\
\text{P} = 1874.67 \\
\text{Y} = 1 \text{ yr.} \\
\text{r} = \frac{125.33}{1874.67} = 0.066585 \\
\text{r} = 6.69\% \\
\]

d) When does it make sense to pay for something in installments? (1 mark)

- need and not a want
- when interest rate is not higher than a loan.
11. Joyce's monthly credit card statement has a previous balance of $1238.56. The statement indicates that Joyce made a payment of $1000 during the month and purchased more goods totaling $989.78. Assume her interest charges for the month are $43.60. Joyce’s minimum monthly payment corresponds to at least 5% of her ending balance or $10, whichever is greater.

a) Calculate Joyce’s new balance. (2 marks)

\[ 1238.56 - 1000 + 989.78 + 43.60 = 1271.94 \]

b) Calculate Joyce’s minimum monthly payment. (2 marks)

\[ 1271.94 \times 5\% = \frac{63.60}{\text{greater than } 10, \text{ so must pay}} \]

12. When selecting a credit card, what three things would you keep in mind? Describe in enough detail to show you understand. (3 marks)

- Points?
- Rate (maybe but not if I pay it off every month)
- Convenience of paying (bank vs. store)
- Annual fee
13. Complete the following chart that compares several different sources of credit. Jot down the approximate interest rate and when it makes sense to use that source of credit. (3 marks)

<table>
<thead>
<tr>
<th>Source</th>
<th>Bank or Credit Union</th>
<th>Credit Card</th>
<th>In-Store Credit (ex. Buy now, pay later)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Rate</td>
<td>4.95% / is common</td>
<td>MC or Visa 19.99%</td>
<td>29.99% / 60 years</td>
</tr>
</tbody>
</table>

Evaluate when...