Grade 11 Essential Math 30S

Credit

Personal Loans
Store Credit
Buy Now, Pay Later
Installment Buying
Credit Cards
Lesson 1 – Credit Options

What is Credit?
Credit plays a large role in personal finance because almost everyone uses it. In order to buy a house, a car, furniture, or even to go on holidays, we may use credit.

Credit is borrowing money with the promise to pay it back. Credit is often used for the large purchases listed above, but even using a credit card is a form of credit (as you may have guessed, since it is called a credit card). In the case of credit cards, you may be under the impression that real money is not involved, but you must still pay that money back to the credit card company.

Why We Use Credit
We borrow money for a variety of reasons. The most frequent reason people borrow money is for the "big ticket" items, such as houses and cars. Many people cannot afford these items without using credit because they are very expensive (tens of thousands of dollars).

You may have heard your parents talk about mortgage payments—a mortgage is credit used to purchase a house.

School and training are other common reasons for people to borrow money. This is seen as "investing in the future," since one result of education is usually an increased income. People might use credit to pay for university and trade certification.

Credit Approval
Now that you know why you would want to use credit, where do you get it? Pre-approved credit cards are a common source of credit that is very accessible. This form of credit simply requires a signature.

Banks and other financial institutions approve credit based on a number of factors including your credit rating (a score based on how well you paid past debts, and your financial status), any current debt and credit you have, and your net worth. Net worth is a comparison of your assets (money and investments you have) and your liabilities (money you owe for other credit, such as a credit card).
You can also offer your assets as security, such as your house, car, or investments. By doing this, you are able to get more credit and maybe even a lower interest rate. The danger with this is that if you do not pay the credit and interest, you could lose whatever you offered as security.

**Credit Cards**

Credit cards are a frequently used source of credit. There are many companies involved in the credit card business, which means there are many credit cards from which to choose. It is important to remember that using a credit card just means that you have to pay later. If you do not pay off the balance on your credit card by the due date (usually around the end of the month), the company will charge interest, and credit card interest rates are usually very high—most ranging from 20% to 30%.

**Personal Line of Credit**

A personal line of credit is a credit account from which you can withdraw funds up to a predetermined limit. You pay interest on only the amount you withdraw, and you can repay the loan in part or completely at any time. As you repay the loan, you can again withdraw funds from the line of credit account. In this way, it resembles a credit card.

The borrower may or may not provide some assets as security in order to get the line of credit. When compared with credit cards, personal lines of credit have much lower interest rates, and so they are a better option if you are not able to pay off the debt immediately.

**Personal and Consumer Loans**

A consumer loan is an amount of money lent to an individual for personal, family, or household purposes. Usually the person borrowing the money does not offer any security for this loan. This type of credit is very flexible because the amount of money borrowed depends on the purpose of the loan. Depending on the institution granting the loan, the loans can vary in the amount borrowed, how long you can take to repay them, and the rate of interest charged. A typical length of time a person takes to repay a personal or consumer loan is between three and seven years. Again, these loans have a lower interest rate than credit cards.

**Overdraft Protection**

Overdraft protection is short-term credit that allows you to withdraw more money from your bank account than you have in the account. The amount that you can overdraw the account is usually quite small. This feature is for the client's convenience, and it helps the client maintain a good credit rating by avoiding bounced cheques (cheques "bounce" when there is not enough...
money in the account to pay for the cheque). Banks may charge an overdraft fee and/or charge interest on the money overdrawn.

**Lesson 1 Assignment – Credit Options**

1. Write a definition for credit in your own words.

   borrowing money you need and promising to pay it back usually with extra "interest".

2. Write four sentences using the words below that show you understand the type of credit that would be used in each situation.

   - Buying groceries: Personal loan
   - Family vacation: Personal line of credit
   - Using more money than is in your account: Credit card
   - Buying a boat: Overdraft protection

   - I used my credit card when I was buying groceries.
   - I was buying a boat so I arranged a personal loan.
   - I used my personal line of credit to pay for my family vacation.
   - I was using more money than what was in my account. Luckily my overdraft protection kicked in.
Lesson 2 Assignment – Personal Loans

1. Complete the following chart:

<table>
<thead>
<tr>
<th>Amount of Loan</th>
<th>Annual Interest Rate</th>
<th>Amortization Period (years)</th>
<th>Monthly Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>$5000</td>
<td>10 ½%</td>
<td>4</td>
<td>$128.00</td>
</tr>
<tr>
<td>$13,500</td>
<td>9 ¾%</td>
<td>1</td>
<td>$1185.30</td>
</tr>
<tr>
<td>$7800</td>
<td>11%</td>
<td>5</td>
<td>$169.57</td>
</tr>
<tr>
<td>$10,750</td>
<td>10 ¼%</td>
<td>3</td>
<td>$348.09</td>
</tr>
<tr>
<td>$18,250</td>
<td>8 ¾%</td>
<td>2</td>
<td>$831.65</td>
</tr>
</tbody>
</table>

2. Bea Wright requires a personal loan of $15,000 for home renovations. Her financial institution offers her a five-year loan at a fixed interest rate of 10 ¼%.

a) How much must Bea pay her financial institution each month?

\[
\frac{15000}{1000} \times 21.37 = \320.55
\]

b) How much does Bea pay in interest over the five years?

\[
320.55 \times (12 \times 5) = \19233 \text{ paid}
\]

\[
19233 - 15000 = \4233 \text{ in interest}
\]
3. If Bea Wright decides to amortize her loan of $15,000 over one year rather than five years, her financial institution offers her a fixed interest rate of 9 3/4%.

a) How much must Bea now pay her financial institution each month?

\[
\frac{15,000 \times 0.09 \times 87,800}{1000} = \$1317.00
\]

b) How much must Bea pay in interest over the year?

\[1317.00 \times 12 = \$15804 \text{ paid.}\]

c) What is the difference in the interest she pays when the loan has an amortization period of one year instead of five years?

\[5804 - 15000 = \$804 \text{ interest in 1 year.} \]

\[\$4233 \text{ saved, } \$3429\] !

4. Bea Reddy has a personal loan of $5000 to purchase appliances for her new house. Her monthly payment is $125. What is the interest rate of her loan, and how long is the term?

\[
\frac{5000}{7000} \times \text{table value} = 125
\]

Corresponds to 4 years, 9.25%.

\[
5 \times \text{TV} = 125
\]

\[
\text{TV} = \frac{125}{5} = 25
\]
Example 4

Express the carrying charge from Example 3 as a percentage of the cash selling price of the PVR.

Rate of percent
\[
\frac{\text{carrying charge}}{\text{cash selling price}} \times 100\%
\]
\[
= \frac{63.39}{436.61} \times 100\% = 14.5\%
\]
Lesson 3 Assignment — Sales Promotions

1. Complete the following chart. The rate of percent expresses the ratio of the difference between the two prices and the pay-now price. Do not include taxes. Where necessary, round the rate of percent to the nearest tenth.

<table>
<thead>
<tr>
<th>Pay-Later Price</th>
<th>Pay-Now Price</th>
<th>Difference between the two prices</th>
<th>Rate of Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>$12,000</td>
<td>$10,000</td>
<td>$2,000</td>
<td>20%</td>
</tr>
<tr>
<td>$6,20</td>
<td>$780</td>
<td>$160</td>
<td>25.8%</td>
</tr>
<tr>
<td>$580</td>
<td>$500</td>
<td>$80</td>
<td>16%</td>
</tr>
<tr>
<td>$1,400</td>
<td>1,325</td>
<td>$75</td>
<td>5.66%</td>
</tr>
<tr>
<td>$1,375</td>
<td>$1,250</td>
<td>$125</td>
<td>10%</td>
</tr>
<tr>
<td>$903</td>
<td>$840</td>
<td>$63</td>
<td>7.5%</td>
</tr>
<tr>
<td>$3,250</td>
<td>$2,900</td>
<td>$350</td>
<td>12.1%</td>
</tr>
<tr>
<td>$1,200</td>
<td>$1,000</td>
<td>$200</td>
<td>20%</td>
</tr>
</tbody>
</table>

2. Bartholomew Upton purchases a washing machine and dryer from Company Y. He can either pay for the washing machine and dryer at the time of purchase, or purchase them on the company's buy-now, pay-later plan. He chooses to purchase them on the company's buy-now, pay-later plan.

On the buy-now, pay-later plan, the price is $698.98 (plus taxes) for the washing machine and $509.98 (plus taxes) for the dryer. At the time of purchase, Bartholomew must pay the taxes, a delivery charge, and a $35 administration fee per item. The delivery charge for both the washing machine and dryer is $35. He has six months to pay for his purchase. If he pays within this period of time, he will not be charged interest.

a) How much will Bartholomew pay at the time of purchase (upfront)?

\[
\begin{align*}
\text{taxes} & \quad \frac{698.98}{509.98} \times 0.13 = 90.87 \\
\text{Admin Fee} & \quad 35 + 35 = 70 \times 1.13 = 79.10 \\
\text{Deliv.} & \quad 35 \times 1.13 = 39.55
\end{align*}
\]

\[
\text{Total} = 90.87 + 79.10 + 39.55 = 209.52
\]
b) If Bartholomew pays for the appliances within six months, calculate his total pay-later price of the appliances.

\[698.98 + 509.88 = \$1208.86\]

3. Terrence Andrews purchases a television set from Company X on October 1. He can either pay for the television set at the time of purchase, or purchase it on the company's buy-now, pay-later plan. He chooses to purchase it on the company's buy-now, pay-later plan.

On the buy-now, pay-later plan, the price is $698.98 (plus taxes). At the time of purchase, Terrence must pay the taxes and a $45 administration fee. There is no delivery fee. He has a six-month period to pay for his purchase. If he pays during this time period, he will not be charged interest. After six months, Company X charges customers 4% interest per annum, compounded monthly, on any outstanding amount.

a) Calculate Terrence's total cost if he pays for the purchase on March 1 of the following year.

No interest

\[\frac{4}{5} \times 1.13 = 0.85\]

\[698.98 \times 0.13 = 90.87\]

\[\frac{141.72}{141.72}\]

Later \[698.98 + 698.98 = \text{Total} \quad \$840.70\]

b) Calculate Terrence's total cost if he pays for the purchase on May 31 of the following year. Assume that the company charges interest only after the "pay-later" period.

\[A = \frac{840.70}{(1 + \frac{.04}{12})^2} = \$703.65\]

\[n = 12\]

\[t = \frac{2}{12}\]

\[n + t = 12 \times \frac{2}{12} = 20\]
4. Complete the following chart:

<table>
<thead>
<tr>
<th>Price</th>
<th>GST (5%)</th>
<th>PST (6%)</th>
<th>Cash Price</th>
<th>Down Payment</th>
<th>Monthly Payment</th>
<th>Months</th>
<th>Installment Price</th>
<th>Carrying Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>249.98</td>
<td>12.50</td>
<td>20.00</td>
<td>282.48</td>
<td>$35</td>
<td>$50</td>
<td>6</td>
<td>335</td>
<td>$52.52</td>
</tr>
<tr>
<td>998.98</td>
<td>49.95</td>
<td>79.92</td>
<td>1128.85</td>
<td>$75</td>
<td>$100</td>
<td>12</td>
<td>1275</td>
<td>$461.15</td>
</tr>
<tr>
<td>1879.99</td>
<td>94.00</td>
<td>150.40</td>
<td>2124.39</td>
<td>$100</td>
<td>$300</td>
<td>8</td>
<td>2500</td>
<td>$375.61</td>
</tr>
<tr>
<td>5998.95</td>
<td>299.95</td>
<td>479.92</td>
<td>6778.81</td>
<td>$500</td>
<td>$400</td>
<td>18</td>
<td>7700</td>
<td>$921.19</td>
</tr>
</tbody>
</table>

5. Robert Trebor decides to purchase a television set at Palindrome Warehouse Company. The television set has a cash selling price of $999.99 plus taxes. The installment terms are $200 down plus $45 a month for 24 months.

   a) Calculate the cash selling price of the television set.
      
      \[ 999.99 \times 1.13 = \$1129.99 \]

   b) Calculate the installment price of the television set.
      
      \[ 200 + (45 \times 24) = \$1280 \]
      
      \[ 200 + (45 \times 1.13 \times 24) = \$1446.40 \]
c) Calculate the carrying charge.

\[ \text{Carrying Charge} = \frac{1420.40 - 1129.59}{2} = 290.41 \]

\[ \text{Total Cost} = 1420.40 \]

\[ \text{Total Interest} = 316.41 \]

\[ \text{Cash Price} = 1129.59 \]

\[ \text{Interest Rate} = \frac{316.41}{1129.59 \times 2} \times 100 = 14.00\% \]

b) In your opinion, should Robert purchase the TV set in installments?

Yes, the interest rate is lower than a personal loan.

\[ \text{Interest Rate} = \frac{290.41}{1129.59 \times 2} \times 100 = 12.85\% \]

\[ \text{Interest Rate} = \frac{150.01}{1129.59 \times 2} \times 100 = 6.64\% \]
Comparing Credit Cards

The first thing you want to find out about the interest rate of a credit card is if it has an interest-free period for purchases, such as not having to pay interest for the first 30 days. It is good to have an interest-free period because you do not have to start paying interest right away. Even better, if you pay the balance before the interest-free period is over, you do not pay any interest!

A lot of credit card companies offer this, but not all of them. Remember that you are charged interest on cash withdrawn with a credit card starting the day it is taken out, whether or not you have an interest-free period.

If you have an interest-free period, the next question is, "What is the interest rate?" If you pay your bill completely at the end of every month, the interest rate will not be an important factor in your decision making about a credit card. Alternatively, if you carry a balance on your card from month to month, the interest rate will play a large role in your decision making. In this case, you will look for a credit card with a lower interest rate so that you are charged less money by the company.

Benefits

Unlike interest rates, not all credit cards offer benefits. Benefits are offered by credit card companies to encourage people to choose their credit card. Examples of benefits include points used for purchases, points used for travel, and credit cards joined with a store so that the points you collect result in discounts at that store. Having benefits attached to your credit card can help you collect points and rewards that will save you money, but you still have to be cautious when choosing a card with benefits. Some cards that have benefits also have a fee you have to pay. In this case, the question you have to ask is, "Will the cost of the benefit be worthwhile when compared with the benefit?"
Lesson 4 Assignment — Credit Cards

1. Bob wants to get a credit card now that he is 18. He is comparing the following two credit card options, which both offer an interest-free period of 30 days. Consonant Two (a credit card company) has an interest rate of 19 percent and an annual fee of $25. Victory Card (another credit card company) offers a 22% interest rate but no annual fee. If Bob plans to pay the balance on his credit card by the due date each time, which company should he choose?

   Since he is paying his balance each month, choose the card with no annual fee.
   Victory Card.

2. On September 12, Max Payment makes a purchase of $3000 on his credit card. The purchase appears on his monthly statement issued September 22. Max does not pay for the purchase by the due date indicated on his September statement. His next monthly statement is issued on October 22. Calculate the interest he is charged for the purchase on his October statement. Assume his lending institution charges him an annual interest rate of 20.5%.

   \[ A = 3000 \left(1 + \frac{0.205}{365}\right)^{40} \]

3. If the new balance on a monthly credit card statement is $689.32, and if the minimum monthly payment corresponds to at least 5% of the ending balance or $10, whichever is greater, calculate the minimum monthly payment.

   \[ 689.32 \times 0.05 = \$34.47 \]
   \[ 34.47 > 10 \text{ so min payment } = \$34.47 \]
4. Joy's monthly statement has a previous balance of $1638.92. The statement indicates that Joy made a payment of $650 during the month and purchased more goods totaling $879.54. Assume her interest charges for the month are $32.75. Joy’s minimum monthly payment corresponds to at least 5% of her ending balance or $10, whichever is greater.

a) Calculate Joy’s new balance.

\[
\begin{align*}
1638.92 - 650 + 879.54 + 32.75 &= 1901.21
\end{align*}
\]

b) Calculate Joy’s minimum monthly payment.

\[
1901.21 \times 0.05 = 95.06 \text{ is greater than } \$10.
\]