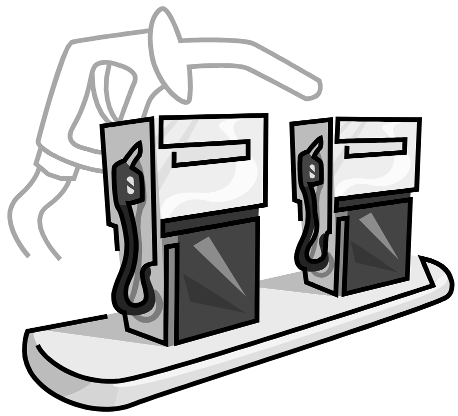
Hidden Taxes



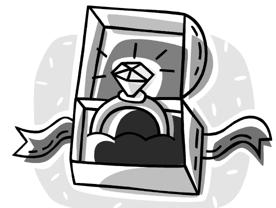
Lesson 6

Lesson Six Concepts

- Recognizing indirect taxes, Calculations involving indirect taxes, Percent of a number

People pay both direct and indirect taxes.
Direct taxes are taxes like property tax, and H.S.T. **I**
ndirect taxes are taxes that are included in the selling price of the item.

Jewellery Tax



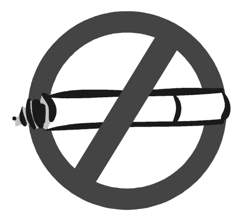
One indirect tax is Jewellery Tax. It is 10% of the wholesale price (price that the store pays). It is included in the store's asking price.

Support Questions

1. What is the amount of indirect tax that will be added to the sale price of the following wholesale priced items?

   a. Watch: $125.75 b. Ring: $650.00 c. Necklace: $218.25

Cigarette Tax



In Ontario, there are 3 cigarette taxes included in the selling price of cigarettes.

This is in addition to the H.S.T. that is taxed on top of the selling price.

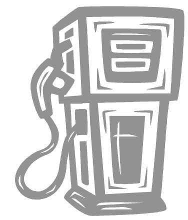
On a carton of 200 cigarettes with a selling price of $40.70,

- The provincial government collects $8.90
- The federal government collects $6.85
- The federal government collects another $5.50

2. What is the total of the three cigarette taxes together on a case of 200?

3. How much is one cigarette before taxes? After taxes?

Gasoline Tax



Gasoline taxes are collect by both the federal and provincial governments. P.S.T is not added to the selling price of gasoline but G.S.T. is included in the selling price of gasoline.

In 2006, here is how much the governments taxed the gasoline:

- Federal 14.7¢/ L   Provincial 30.1¢/ L

4. What is the total of the two gasoline taxes on each of the amounts of gasoline?
    a. 1 L   b. 15 L   c. 25 L   d. 50.5 L

5. What percent of each selling price is the 30.1¢/L tax collected by the provincial government?
    a. 55.5¢/L   b. 74¢/L   c. 91.3¢/ L

6. What percent of each selling price is the 14.7¢/L tax collected by the federal government?
    a. 55.5¢/ L   b. 74¢/ L   c. 91.3¢/ L

Key Question #6

1. What is the amount of indirect tax that will be added to the sale price of the following wholesale priced items?

a. Watch: $65.00   b. Ring: $3250.00   c. Necklace: $595.25

2. How much does a carton of 200 cigarettes (regular $40.70) cost including all 4 taxes?

3. What percent of the total price of one carton is made up of the taxes?

4. What is the total of the two gasoline taxes on each of the amounts of gasoline?
   a. 5 L b. 11 L c. 22.5 L d. 65 L

5. What percent of each selling price is the 14.7¢/L tax collected by the federal government?
   a. 65.5¢/L b. 79.9¢/L c. 94.7¢/L

6. What percent of each selling price is the 30.1¢/L tax collected by the provincial government?
   a. 65.5¢/L b. 79.9¢/L c. 94.7¢/L

7. Why do you think the government charges high taxes on cigarettes?

8. Why do you think the government charges high taxes on gasoline?

Simple Interest

Lesson 7

Lesson Seven Concepts

- Converting various time units into years
- Converting percent into decimal form
- Calculating simple interest earned
- Substitution into the formula I = Prt

When you deposit money in a bank account, you lend your money to the bank. The bank gives you money for the borrowing of your money. Money earned or paid for the use of money is called **interest**.

Banks offer many interest options. Below is an example of how a simple savings scheme works.

Example 1

Suppose $200 is deposited in a bank account that pays and annual interest rate of 5%. Show how it earns 5% of $200 for a 1 year, 2 year and 3 year savings.

Solution

Year 1 Interest = $2000 x 0.05 x 1
= $10

Year 2 Interest = $2000 x 0.05 x 2
= $20

Year 3 Interest = $2000 x 0.05 x 3
= $30

The interest earned depends on three factors:

- the amount of money invested (or owed) which is called the *principal*, ***P***
- the annual interest *rate*, expressed as a decimal, ***r***
- the *time* (expressed in years) for which the money is invested, ***t***

This is called Simple Interest and uses the formula:

Interest = Principal x Rate x Time in years

I = Prt

As mentioned above one key component in calculating simple interest is converting the annual interest rate to decimal.

Example 1: Convert 4% to decimal Solution: 4 ÷ 100 = 0.04

Support Questions

1. Express each of the following interest rates as a decimal

a. 3% b. 6.5% c. 8% d. 0.5% e. 2.7% f. 12%

A second key component to calculating simple interest is converting various time units into years.

Example 1: Convert each of the following into years.

a. 20 weeks b. 250 days c. 18 months

Solution

a. Since there are 52 weeks in 1 year: 20 weeks ÷ 52 weeks ≈ 0.38 years

b. Since there are 365 days in 1 year: 250 days ÷ 365 days ≈ 0.68 years

c. Since there are 12 months in 1 year: 18 months ÷ 12 months ≈ 1.5 years

Support Questions

2. Convert each into years.

a. 26 weeks b. 3 months c. 730 days d. 78 weeks e. 24 months f. 1095 days

*Calculating Simple Interest Earned: Formula: **I = Prt***

Example 1: What is the interest earned on $500 invested for 10 years at 7.5%?

Solution

P = 500
r = 7.5 ÷ 100
= 0.075
t = 10

Interest = Principal x rate x time
I = Prt
= 500 x 0.075 x 10
= $375.00

Example 2: Heather put $1500 in her bank account that earns an annual simple interest rate of 2.5%. She left that money there for 5 years. How much is in her account at the end of 5 years?

Solution: I = Prt
I = 1500 x 0.025 x 5
I = $187.50

Bank balance = initial deposit + interest
= $1500 + 187.50
= $1687.50

3. Calculate the interest earned on each investment.

Principal	Rate	Time	Interest ($)
$100	5%	3 years	
$300	4.7%	30 months	
$2000	7.1%	365 days	
$1750.00	2.25%	13 weeks	

4. John invested $10000 of his money for 51 days. The interest rate was 3%. How much interest did John earn?

Key Question #7

1. Express each of the following interest rates as a decimal
   a. 4% b. 8.25% c. 7.3% d. 0.2% e. 5.9% f. 15%

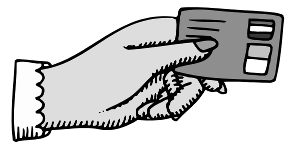
2. Convert each into years.

a. 39 weeks b. 36 months c. 1460 days d. 104 weeks e. 42 months

3. Calculate the interest earned on each investment.

Principal	Rate	Time	Interest ($)
$125	5.1%	4 years	
$2850	1.5%	54 months	
$15 000	7.9%	150 days	
$1275.00	3.90%	65 weeks	

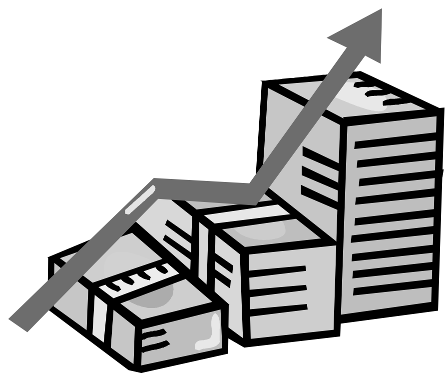
4. A credit card company charges interest at 24% per year on outstanding balances. How much interest would be charged on an outstanding balance of $1283.45 for 51 days?



5. Noah borrowed $5000 from the credit union for 180 days. The interest rate is 11.4% per year. How much must Noah pay to the credit union after 180 days?

6. Does doubling the time of an investment double the amount of interest earned? Explain with words and an example.

Compound Interest



Lesson 8

Lesson Eight Concepts

- Calculating the number of times interest is compounded "***n***"
- Converting to an adjusted annual interest rate in decimal form "***i***"
- Substitution into the formula $A = P(1+i)^n$
- Understanding various compounding periods
- Recognizing the value of "**P**" for use in the formula: $A = P(1+i)^n$

Compound Interest: is when interested is earned on interest.

Interest is commonly calculated or "compounded" at regular intervals. These intervals can vary. Below is a list of the commonly used intervals and the number of times per year interest earned on interest is calculated.

Compounding period	Number of times compounded per year
Annually	1 time / year
Semi-annually	2 times / year
Quarterly	4 times / year
Monthly	12 times / year
Semi-monthly	24 times / year
Weekly	52 times / year
Bi-weekly	26 times / year
Daily	365 times / year

To calculate compound interest the formula $A = P(1+i)^n$ is used.

The values of **P**, **i**, and **n** must be substituted into the above formula to find **A** which represents the amount the compound interest has made in addition to the initial investment/loan.

"n" represents the total # of compounding periods over the entire loan.

Calculating the value of "**n**" in the formula $A = P(1+i)^n$

n = number of compounds per year **x** number of years

Example 1: What is the value of "n" if a loan is compounded monthly for 3 years?

Solution: **n** = number of compounds per year **x** number of years
n = 12 compounds per year **x** 3 years
n = 12 x 3
n = 36

Example 2: What is the value of "n" if a loan is compounded quarterly for 5 years?

Solution: n **= number of compounds per year** x **number of years**
n = 4 compounds per year **x** 5 years
n = 4 x 5
n = 20

Support Questions

1. Find the value of "n" for each situation described below if interest is compouded

a. semi-annually for 6 years

b. bi-weekly for 2 years

c. semi-monthly for 3 years

d. daily for 4 years

Finding "i": <u>"i" represents the adjusted annual interest rate.</u>

Calculating the value of " **i** " in the formula $A = P(1+i)^n$

i = annual interest rate in decimal form ÷ number of compounds per year

Example 1: What is the value of "i" with an interested rate of 12% compounded quarterly?

Solution: **i** = annual interest rate in decimal form ÷ number of compounds per year

i = 0.12 ÷ 4 compounds per year

i = 0.12 ÷ 4

i = 0.03

Example 2: What is the value of "i" with an interested rate of 8% compounded semi-annually?

Solution: **i** = annual interest rate in decimal form ÷ number of compounds per year

i = 0.08 ÷ 2 compounds per year

i = 0.08 ÷ 2

i = 0.04

Support Questions

4. Find the value of "i" to three decimal places for each situation described below:

   a. interest rate of 11% compounded annually

   b. Annual interest rate of 24% compounded semi-monthly

   c. Annual interest rate of 16% compounded quarterly

   d. Annual interest rate of 14% compounded semi-annually

Finding "P": "**P**" represents the initial value of the loan/investment.

Calculating the value of "**P**" in the formula $A = P(1+i)^n$

Example 1: What is the value of "P" if $500 is borrowed at an interested rate of 7% compounded daily?

Solution: The initial loan is $500, therefore, P = 500

Support Questions

5. Find the value of "P" for each situation described below:

a. $2000 loan at an interest rate of 5% compounded weekly: P =

b. An interest rate of 7% compounded daily on an investment of $5000: P =

c. $100 is borrowed at an interest rate of 3% compounded bi-weekly: P =

<u>Calculating Compound Interest</u>

Each of the values of "**P**", "**i**" and "**n**" are needed to use the formula $A = P(1+i)^n$ to calculate compound interest.

"**A**" represents the total of the initial investment/loan plus all interest earned.

For example, if $5000 was invested and $200 was made in interest then **A** = $5200.

Example 1: Johnny invests $800 that pays 8% compounded quarterly for 5 years. How much is the investment worth at the end of the 5th year?

Solution: P = 800

$i = 0.08 \div 4$
$= 0.02$

$n = 4 \times 5$
$= 20$

$A = P(1+i)^n$

$A = 800(1+0.02)^{20}$

$A = \$1188.76$

Therefore the investment is now worth $1188.76.
($800 initially and $388.76 in interest)

Example 2: A $1500.00 loan is taken out at 12% compounded monthly for 3 years. How much interest is added to the loan at the end of the 3rd year if no payment had been made?

Solution: P = 1500

$i = 0.12 \div 12$
$= 0.01$

$n = 12 \times 3$
$= 36$

$$A = P(1+i)^n$$
$$A = 1500(1+.01)^{36}$$
$$A = \$2146.15$$

Interest = Amount - Principle
= 2146.15 – 1500
= $646.15

Therefore $646.15 in interest has been added to the initial value of the loan.

Support Questions

Determine the amount of each investment.

a. $600 at 5% compounded monthly
   a. for 7 years.

b. $2000 at 4% compounded semi-annually for 5 years.

Key Question #8

1. Find the value of “n” for each situation described below:

   a. Compounded semi-monthly for 6 years

   b. Compounded weekly for 2 years

c. Compounded semi-annually for 3 years

2. Find the value of "i" to three decimal places for each situation described following;

a. interest rate of 12% compounded annually

b. interest rate of 10% compounded quarterly

c. interest rate of 18% compounded monthly

3. Find the value of "P" for each situation described below:

a. $5000 loan at an interested rate of 4% compounded weekly P =

b. $350 is borrowed at an interested rate of 7.2% compounded bi-weekly P =

c. An interested rate of 5.5% compounded daily on an investment of $6250.00 P =

4. Determine the amount of each investment.

a. $400 at 9% compounded semi-annually for 2 years.

b. $775 at 6% compounded quarterly for 13 years

5. When working with compound interest, does doubling the time of an investment double the amount of interest earned? Explain with words and an example.

Currency Exchange

Lesson 9

Lesson Nine Concepts

- Converting Canadian to U.S. currency
- Converting U.S. to Canadian currency

Converting Canadian to U.S. Currency

The United States is Canada's largest trading partner and thousands of Canadians enter the United States everyday.

The conversion factor changes daily and as of July 2005 was \$1 Cdn = \$0.8032 U.S.

This means that every one dollar Canadian is equal to just over 80¢ U.S.

Example 1: How much does an item that sells for \$24.99 Cdn. cost in U.S. currency?

Solution: U.S. price = 24.99 x 0.8032
= \$20.07 U.S.

Example 2: The item following is for sale in Toronto. How much would a U.S. tourist pay if they paid in U.S. currency and the store was offering the current exchange rate of \$1 Cdn = \$0.8032 U.S.

Solution: U.S. price = 60.00 x 0.8032
= \$48.19 U.S.

Support Questions

1. Convert each of the Canadian prices into U.S. prices. (\$1 Cdn = 0.8032 U.S.)

a. \$1.02/ L of gasoline b. 4 pack AAA for \$6.99 c. Leather jacket for \$299.99

Converting U.S. to Canadian Currency

The exchange rate is usually expressed in Canada so that one dollar Canadian equals a certain value in U.S. currency.

To convert from Canadian to U.S. currency the formula below must be applied.

$$1 \text{ U.S.} = \frac{1}{\text{Value of U.S. currency in Canada}}$$
$$= \frac{1}{0.8032}$$
$$\approx \$1.245 \text{ Canadian}$$

This means that every one dollar U.S. is equal to just over $1.245 Canadian.

Example 1: How much does an item that sells for $17.97 U.S. cost in Canadian currency? (Assume $1 Cdn = $0.8157 U.S.)

Solution

$$1 \text{ U.S.} = \frac{1}{\text{Value of U.S. currency in Canada}}$$
$$= \frac{1}{0.8157}$$
$$\approx \$1.256 \text{ Canadian}$$

Canadian price = 17.97 x 1.256
= $22.57 Canadian

Example 2

How much does an item that sells for $215.99 U.S. cost in Canadian currency? (Assume $1 Cdn = $0.7814 U.S.)

Solution: **1 U.S. =** $\frac{1}{\text{Value of U.S. currency in Canada}}$

$$= \frac{1}{0.7814}$$
$$\approx \$1.28 \text{ Canadian}$$

Canadian price = 215.99 x 1.28
= $276.47 Canadian

Support Questions

2. Convert each into \$1 U.S. using the given exchange rate.

   a. (\$1 Cdn = 0.5679 U.S.)   b. (\$1 Cdn = 0.6145 U.S.)

3. Find the cost of each item in Canadian currency. (\$1 Cdn = 0.7861 U.S.)

   a. Levi jeans \$32.99 U.S.   b. Sofa \$429.00 U.S.   c. \$115.97 U.S.

Key Question #9

1. Convert each of the Canadian prices into U.S. prices. (\$1 Cdn = 0.8102 U.S.)

   a. \$38.99 T-shirt   b. \$24.99 Disney DVD   c. Children's tent \$41.97

2. Convert each into \$1 U.S. using the given exchange rate.

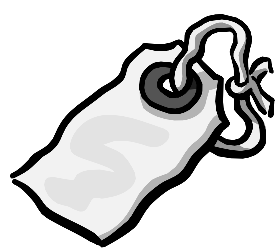
   a. (\$1 Cdn = 0.5723 U.S.)   b. (\$1 Cdn = 0.6718 U.S.)

3. Find the cost of each item in Canadian currency. ($1 Cdn = 0.7531 U.S.)

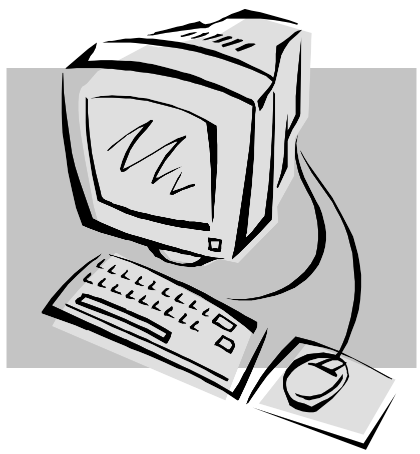
   a. MacDonald's Happy Meal $4.99 U.S.

   b. Xbox $229 U.S.

4. The phrase "Canada is on Sale" is often said when Americans visit Canada. What do you think this means? Is the U.S. ever on sale to Canadians?



Online Banking



Lesson 10

Lesson Ten Concepts

- Introduction to online banking
- Calculating service charges for online banking
- Recognizing various features of online banking

Online Banking

Online banking offers allows all its users with internet connection to access their financial information and management activities 24 hours a day, 7 days a week.

The sites are secure which means that all confidential information you send regarding your banking activities is private between you and your bank.

The following are some of the services offered by online banking:

- Check balances for bank, credit card and mortgage accounts
- Pay bills online
- Schedule automatic payments for one-time or on going bills
- Register to pay bills using your phone or a bank machine (ATM)
- Receive bills from companies with an e-Bills service
- Transfer funds between accounts such as from a savings account to a Visa card account
- Apply for products online such as credit cards, RRSP's, personal line of credit and overdraft protection
- Order cheques online
- Download bank information into some software programs
- Manage business banking including government tax filing and payments

Depending on the type of account, various fees can occur when using online banking. Usually, transactions have service fees or charges.

Example 1

Calculate the cost of doing online banking during the month. Brian during one month had 17 online transactions and 3 e-mail money transfers. What were his service charges for that month? The account information is given below:

Account Information

- Up to 10 online transactions for $4.50 per month and $0.75 for each transaction over 10.
- $2.50 for each e-mail money transfer

Solution

17 transactions – 10 free transactions = 7 transactions each costing $0.75

3 e-mail transfers each costing $2.50

Total cost = 4.25 + 7 x 0.75 + 3 x 2.50

= 4.50 + 5.25 + 7.50

=$17.25

Example 2

Calculate the cost of doing online banking during the month. Jane during one month had 35 online transactions and 7 e-mail money transfers. Jane managed to keep her monthly balance above $2000 for the entire month. What were her service charges for that month? The account information is given below:

Account Information

- Up to 15 online transactions for $5.75 per month and $0.60 for each transaction over 15.
- $1.50 for each e-mail money transfer
- e-mail transfers are free if minimum balance of $1000.00 maintained in the account at all times

Solution

35 transactions – 15 free transactions = 20 transactions each costing $0.60

7 e-mail transfers free because minimum balance kept above $1000

Total cost = 5.75 + 20 x 0.60

= 5.75 + 12.00

=$17.75

Support Questions

1. For each situation calculate the monthly service charges.

a. Erin during one month had 22 online transactions and 4 e-mail money transfers. Erin managed to keep her monthly balance above $1500 for the entire month. What were her service charges for that month? The account information is given below:

Account Information

- Up to 6 online transactions for $3.25 per month and $0.85 for each transaction over 6
- $3.50 for each e-mail money transfer
- online transactions are free if minimum balance of $1500.00 maintained in the account at all times

b. Steven during one month had 38 online transactions and 9 e-mail money transfers. What were his service charges for that month? The account information is given below:

Account Information

- Up to 20 online transactions for $7.50 per month and $0.50 for each transaction over 20
- $1.50 for each e-mail money transfer

Key Question #10

1. For each situation calculate the monthly service charges.

a. Lester during one month had 17 online transactions and 5 e-mail money transfers. Lester managed to keep his monthly balance above $2000 for the entire month. What were his service charges for that month? The account information is given below:

Account Information

- Up to 15 online transactions for $4.75 per month and $0.65 for each transaction over 15
- $2.50 for each e-mail money transfer
- online transactions are free if minimum balance of $2000.00 maintained in the account at all times

2. Describe one advantage and one disadvantage of online banking.

3. Why do you think some banks allow free transactions if a minimum balance is kept in the account?

4. Give 5 features of online banking.