

# Making Purchases

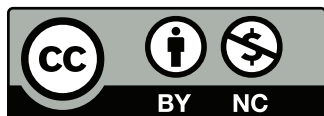
Apprenticeship and Workplace  
Mathematics

(Grade 10/Literacy Foundations Level 7)

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## Viewing Your PDF Learning Package

This PDF Learning Package is designed to be viewed in Acrobat. If you are using the optional media resources, you should be able to link directly to the resource from the pdf viewed in Acrobat Reader. The links may not work as expected with other pdf viewers.



Download Adobe Acrobat Reader:

<http://get.adobe.com/reader/>

# Section Organization

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This section on Making Purchases is made up of several lessons.

## Lessons

Lessons have a combination of reading and hands-on activities to give you a chance to process the material while being an active learner. Each lesson is made up of the following parts:

### Essential Questions

The essential questions included here are based on the main concepts in each lesson. These help you focus on what you will learn in the lesson.

### Focus

This is a brief introduction to the lesson.

### Get Started

This is a quick refresher of the key information and skills you will need to be successful in the lesson.

### Activities

Throughout the lesson you will see three types of activities:

- Try This activities are hands-on, exploratory activities.
- Self-Check activities provide practice with the skills and concepts recently taught.
- Mastering Concepts activities extend and apply the skills you learned in the lesson.

You will mark these activities using the solutions at the end of each section.

### Explore

Here you will explore new concepts, make predictions, and discover patterns.

### Bringing Ideas Together

This is the main teaching part of the lesson. Here, you will build on the ideas from the Get Started and the Explore. You will expand your knowledge and practice your new skills.

### Lesson Summary

This is a brief summary of the lesson content as well as some instructions on what to do next.

At the end of each section you will find:

### **Solutions**

This contains all of the solutions to the Activities.

### **Appendix**

Here you will find the Data Pages along with other extra resources that you need to complete the section. You will be directed to these as needed.

### **Glossary**

This is a list of key terms and their definitions.

Throughout the section, you will see the following features:

### **Icons**

Throughout the section you will see a few icons used on the left-hand side of the page. These icons are used to signal a change in activity or to bring your attention to important instructions.



AWM online resource (optional)

This indicates a resource available on the internet. If you do not have access, you may skip these sections.



**Solutions**

### My Notes

The column on the outside edge of most pages is called “My Notes”. You can use this space to:

- write questions about things you don’t understand.
- note things that you want to look at again.
- draw pictures that help you understand the math.
- identify words that you don’t understand.
- connect what you are learning to what you already know.
- make your own notes or comments.

### Materials and Resources

There is no textbook required for this course.

You will be expected to have certain tools and materials at your disposal while working on the lessons. When you begin a lesson, have a look at the list of items you will need. You can find this list on the first page of the lesson, right under the lesson title.

In general, you should have the following things handy while you work on your lessons:

- a scientific calculator
- a ruler
- a geometry set
- Data Pages (found in the Appendix)





# Making Purchases

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Shopping is an integral part of our day-to-day lives. From the food in your fridge, to the clothes in your closet, most of the items in your home were purchased from somewhere: maybe from a store, an online shop, or an individual. How we decide on what to buy depends on a number of factors. One of the most influential factors is money. Whether you are shopping in Canada or in a foreign country, you need to know how much money you have and how much an item costs in order to make an informed decision about your purchase.

In this section, you will learn how to choose the best price by comparing unit prices and considering price increases and decreases. You will also learn how to make wise shopping choices when traveling in other countries by learning how to convert between different currencies.



Photo by Jorge Salcedo © 2010

In this section, you will:

- investigate how unit prices, price increases and decreases, as well as currency exchange, influence purchasing decisions



## Lesson A

# Unit Prices

To complete this lesson, you will need:

- a calculator
- to take a trip to a local grocery store

In this lesson, you will complete:

- 6 activities

## Essential Questions

- How are unit prices calculated?
- How do you determine the best buy if unit price, quality, and quantity are all factors you must consider?
- How do retailers express the price of items they wish to promote?

## My Notes

## Focus

Mila owns a health-food store in a city close to where Anna lives. Mila is always so welcoming and helpful when Anna shops at the store. Anna has just dropped into the store to buy some 500-mg vitamin C tablets.



Photo by Monkey Business Images © 2010

Anna holds up two containers of tablets. “It costs \$8.99 for 200 tablets and \$18.99 for 500 tablets. Which container is the better buy?” Anna asks.

“Generally, the larger size is a better value,” Mila says. “But, not always!” Bring the containers to the counter, and I’ll use my calculator to check. Also think about whether you would use all 500 tablets before they expire.”

Which container would you buy?

## Get Started

When making purchases you’ll notice that items are often sold by weight. Some items may be sold by the pound while others may be sold by the kilogram. In the examples and in Activity 1, you will review how to convert between these masses.

Remember that:

$1 \text{ kg} \approx 2.2 \text{ lb}$

That means that a kilogram weighs more than a pound.

**Did You Know?**

Did you know that a packaged piece of salami weighs approximately a pound? And that a whole pineapple weighs approximately a kilogram?

**Example 1**

Convert and round to the nearest tenth.

- a. 18 lbs into kilograms.
- b. 7.5 kg into pounds.

**Solution**

- a. A kilogram weighs more than a pound. So, to convert pounds into kilograms, divide by 2.2.

$$18 \div 2.2 = 8.181818\dots$$

18 lbs is approximately 8.2 kg.

- b. To convert kilograms into pounds, see the pattern.

$$1 \text{ kg} = 2.2 \text{ lb},$$

$$\text{So } 2 \text{ kg} = 2.2 \text{ lb} \times 2$$

$$\text{And } 3 \text{ kg} = 2.2 \text{ lb} \times 3$$

Following this pattern,  $7.5 \text{ kg} = 2.2 \text{ lb} \times 7.5 = 16.5 \text{ lb}$ .

**Activity 1****Self-Check**

1. Fill in the blanks. (Round each answer to one decimal place.)
  - a. 8 lb is approximately \_\_\_\_\_ kg
  - b. 6.2 kg is approximately \_\_\_\_\_ lb
  - c. 35 kg is approximately \_\_\_\_\_ lb
  - d. 115 lb is approximately \_\_\_\_\_ kg



Turn to the solutions at the end of the section and mark your work.

My Notes

## Explore

In many grocery stores and markets there is a bulk food section. Items such as candies, nuts, spices, baking ingredients, dried fruits, cookies, and dried cereals are in large bins and customers serve themselves. The same items are also sold in packages elsewhere in the store. Often, but not always, the same items sold in packages are more expensive. In the bulk aisle, prices are commonly expressed per 100 grams. The following example will show a method you can use to compare items sold in packages to items sold in bulk.



Photo by Regien Paassen © 2010

### Example 2

Skyler can buy baking almonds from the bulk bins for \$0.99/100g. He can also purchase a 250-g package of almonds for \$7.99. Which is the better buy?

### Solution

The two prices are for different amounts of almonds. To compare the prices, you need to find the price per 100 g of the packaged almonds.

Use a proportion to find the price per 100 grams. Make sure:

- the numerators of both fractions contain the price in dollars
- the denominators of both fractions contain the amount (weight) of almonds in grams

$$\frac{\$7.99}{250 \text{ g}} = \frac{x}{100 \text{ g}}$$

$$\frac{\cancel{\$7.99}}{\cancel{250 \text{ g}}} = \frac{\cancel{x}}{\cancel{100 \text{ g}}}$$

Find the cross products.

$$(x)(250 \text{ g}) = (\$7.99)(100 \text{ g})$$

$$x = \frac{(\$7.99)(100 \text{ g})}{(250 \text{ g})}$$

$$x = \$3.20$$

To isolate  $x$ , divide both sides by 250 g

To the nearest cent, the cost per 100 g of the packaged almonds is \$3.20.

At \$0.99/100 g, the bulk almonds are a better buy than the packaged almonds.

## Activity 2

### Self-Check

## My Notes

Kim finds jellybeans at the local supermarket. Help Kim decide which jellybeans are the better deal: those from the bulk bin, which sell for \$0.49/100g, or the 150-g package, which sells for \$1.39.



Turn to the solutions at the end of the section and mark your work.

## Activity 3

### Try This

In this activity you will explore the difference in price between at least five items sold in bulk and the same five items sold in 100-g packages.

**Prepare:** Make a trip to your local grocery store or look on the Internet to find prices to complete the table below. Record prices from five items in the bulk aisle. Then find the prices of equivalent pre-packaged goods. Remember to record the weights of the pre-packaged items.

### My Notes

1. Complete a table like the following. An example has been done for you. Round calculated prices to the nearest cent.

Item Description	Bulk Price/100 g	Package Size	Package Price	Package Price/100g
baking almonds	\$0.99/100 g	250 g	\$7.99	\$3.20/100 g

2. Were any packaged items cheaper than the equivalent bulk items?
3. Even if they are more expensive, why do some consumers prefer to buy packaged items?



Turn to the solutions at the end of the section and mark your work.

## Bringing Ideas Together

In Explore, you compared prices using 100 g as the comparison “unit.” This means you had each item as a price per 100 g in order to determine the best price. When an item’s cost is written as a cost per unit, the cost is referred to as a **unit price**.

When you are calculating unit prices for items sold by weight, these are some possible units you will work with:

- pounds (lb)
- kilograms (kg)
- 100 grams (100 g)



When you are calculating unit prices for items sold by volume, these are some possible units you will work with:

- litres (L)
- 100 millilitres (100 mL)

Which units you work with depends on what makes for a reasonable answer. When weighing a small spider it would make sense to work in grams. However, when weighing yourself pounds or kilograms makes more sense. The comparison unit you use depends on the context.

### Example 3

In Canada, prices of fruits and vegetables are often posted in the store per pound. The per-kilogram price is often on the sticker in a much smaller print size. However, if you look at your cashier's receipt, the prices will be printed per kilogram.



Photo by SeDmi © 2010

At the local supermarket, bananas are advertised at \$0.59/lb. Estimate the price per kilogram. Then, find the actual price. Round to the nearest cent.

### Solution

#### Method 1: Estimation

Remember that  $1 \text{ kg} \approx 2.2 \text{ lb}$  and that in this problem, 1 lb costs \$0.59 or approximately 60¢.

Use the approximated unit price of 60¢.

#### Step 1:

Multiply by 2.

$$2 \times 60\text{¢} = 120\text{¢}$$

#### Step 2:

Take 20% of 60¢ by finding 10%, and then doubling it. You know that 10% of 60¢ is 6¢. To find 20%, double 6¢, which is 12¢.

**My Notes****Step 3:**

Add the results of Step 1 and Step 2 together.

$$\begin{aligned} 120¢ + 12¢ &= 132¢ \\ &= \$1.32 \end{aligned}$$

So, the price for one kilogram is approximately \$1.32.

**Method 2: Calculator**

Remember that  $1 \text{ kg} \approx 2.2 \text{ lb}$  and that in this problem, 1 lb costs \$0.59.

Multiply by 2.2.

$$\begin{aligned} 1 \text{ kg} &\approx \$0.59 \times 2.2 \\ 1 \text{ kg} &\approx 1.298 \\ 1 \text{ kg} &\approx \$1.30 \end{aligned}$$

Bananas cost \$1.30/kg.

### Activity 4

### Self-Check

In the following questions you will convert prices between pounds and kilograms.

1. Devan is flipping through a grocery flyer. He sees T-bone steak advertized for \$4.99/lb.
  - a. Find the price per kilogram using a calculator.

- b. How would you mentally estimate the price per kilogram?
- c. Why do you think the price is advertised per pound, rather than per kilogram?
2. Penny is checking her receipt from her recent shop at the grocery store. She remarks that the chicken thighs she purchased cost \$4.38/kg. What would have been the price per pound advertised at the store?



Turn to the solutions at the end of the section and mark your work.

## My Notes

**Prices per 100 mL or 100 g**

Some prices are given per kilogram or per litre. However at times, prices are stated per 100 g or per 100 mL. Study the following examples to see why.

**Example 4**

A specialty sausage in the deli department of a local supermarket is advertised for \$2.69/100 g.

- What is the price per kilogram?
- What is the price per pound?
- Give a reason why the price might be quoted in per 100 g.

**Solution**

- In this problem,  
100 g = \$2.69. To find the price for 1 kg, continue this pattern:

$$200 \text{ g} = \$2.69 \text{ times } 2$$

$$300 \text{ g} = \$2.69 \text{ times } 3$$

$$400 \text{ g} = \$2.69 \text{ times } 4$$

- 
- 
- 

$$1000 \text{ g} = \$2.69 \text{ times } 10 = \$26.90$$

Since 1000 g equals 1 kilogram, the price for 1 kilogram of specialty sausage is \$26.90.



Photo by Nayashkova Olga © 2010

- b. Remember  $1 \text{ kg} \approx 2.2 \text{ lb}$  and that in this problem,  $1 \text{ kg}$  costs \$26.90.

$$1 \text{ lb costs} \approx \$26.90 \div 2.2$$

$$1 \text{ lb costs} \approx \$12.227\dots$$

$$1 \text{ lb costs} \approx \$12.23$$

One pound costs \$12.23.

- c. The deli uses 100 g, because  $\$2.69/100 \text{ g}$  looks much less expensive than either  $\$26.90/\text{kg}$  or  $\$12.23/\text{lb}$ .

### Example 5

The local supermarket displays unit prices for its canned goods, such as soups, to the nearest tenth of a cent per 100 mL. A 284-mL can of tomato soup sells for \$0.49. What is the unit price the store would display on the shelf?

### Solution

Since the unit prices are given to the nearest tenth of a cent, use cents in your calculations. So  $\$0.49 = 49\text{¢}$ .

A can of tomato soup is 49¢ for 284 mL. What you need to find out is how much 100 mL would cost. Do this by setting up a proportion. Let  $x$  be the price per 100 mL.

$$\frac{49}{284} = \frac{x}{100}$$

cross multiply

$$(284)(x) = (49)(100)$$

Divide both sides by 284 to isolate  $x$ .

$$x = \frac{(49)(100)}{(284)}$$

$$x = 17.25352113\dots$$

The unit price label reads  $17.3\text{¢}/100\text{mL}$ .

## My Notes

**Activity 5**  
**Self-Check**

Use unit prices to see which item is the better buy.

1. At the same supermarket as in Example 5, a competitor's brand of tomato soup is sold in a 300-mL can for \$0.55.
  - a. What unit price is shown for this brand?
  
  
  
  
  
  
  
  - b. Based on price alone, which brand of soup is the better buy: the soup from Example 5 or the soup in this question?
  
2. Still at the same supermarket, Michael is checking the unit prices to compare the same brand of breakfast cereal sold in two different sizes. The 685-g package sells for \$3.25, and the 1.9-kg box sells for \$9.99. Based on the unit prices shown in ¢/100g, which is the better buy?

## My Notes

3. A certain brand of dishwasher soap at the local general store is sold in two sizes. The 1.69 kg size retails for \$5.79, and the 2.83 kg size sells for \$8.49. Determine the better buy by calculating the unit price in dollars per kilogram. Round to the nearest cent.
4. A popular bathroom tissue comes in two sizes: a 16-roll size that sells for \$8.79, and a 24-roll size for \$10.49. Calculate the price per roll to determine which is the better buy. Round the price per roll to the nearest tenth of a cent.



Turn to the solutions at the end of the section and mark your work.

## My Notes

**Activity 6**  
**Mastering Concepts**

Precious metals are quoted in dollars per troy ounce. A troy ounce is 31.103 4668 g.

The Royal Canadian Mint manufactures 1-oz gold coins for investors. The 1-oz coin is called the Gold Maple Leaf. The Mint also has minted gold coins with a mass of 1 kg. The coin shown in the photograph is the 2008 award-winning “Towards Confederation” coin that portrays historical highlights in this country’s changing nation, from New France to Confederation.



Photo by Horst Petzold © 2010

On January 31, 2010, the price of gold was \$1156.83 Canadian per troy ounce. On that date, how much was 1 kg of gold worth?



Turn to the solutions at the end of the section and mark your work.



## Lesson Summary

When you're shopping, it is important to consider the price of items as well as their appearance, quality, freshness, or brand. In this lesson you explored strategies for comparison shopping. As well, you investigated how retailers often price articles to enhance sales.

As you worked through this lesson you analyzed unit prices in both SI and imperial measures. This is because it's still common in Canada to see price per pound for meats and produce. However, at the cash register, the prices are quoted in metric measures, such as kilograms.



Photo by Mona Makela © 2010

## My Notes



## Lesson B

# Price Increases and Decreases

**To complete this lesson, you will need:**

- an assortment of sales flyers
- a calculator

**In this lesson, you will complete:**

- 6 activities

## Essential Questions

- How are percentages used to calculate discounts and markups?

## My Notes

## Focus

Steve's mother wants new winter tires installed on her vehicle. She has asked Steve to check out prices. Steve has just stopped by the shop where his friend Carmen works. Carmen says they have a mid-season special right now. Snow tires the size Steve's mother needs are regularly \$199.00 each; but, if she purchases the tires this week, she will get all four tires for the price of three. Steve knows that, at the local building centre, the same tires are regularly \$209.00 apiece, but they are on sale right now for 30% off.



Photo by Alaettin YILDIRIM © 2010

Which is the better buy?

## Get Started

Find a couple of sales flyers that have arrived in the mail or that are available online. Take a few minutes to leaf through the flyers. Focus on how the consumer is encouraged to make purchases from the stores advertising in the flyers.



Photo by JohnKwan © 2010

Are the flyers attractive and well laid out, and do they highlight items of interest? Are there items on sale for less than regular price? Are percent discounts featured or are the dollar values of the discounts displayed? How can you tell, for instance, if \$10.00 off is as good as a discount of 20%?

## Percents

When you are working with **percents**, it is important to be able to convert among percents, decimals, and fractions.

Here are a few key points about percents.

- “Percent” means “out of a hundred.” The symbol, %, is just a shorthand for writing /100.

For example:

15% means 15 out of 100 and as a fraction this would be  $\frac{15}{100}$  which can be reduced to  $\frac{3}{20}$ .

- To change a fraction like  $\frac{15}{100}$  to a decimal, divide the numerator by the denominator.

$$15 \div 100 = 0.15$$

- To change a fraction to a percent, rewrite the fraction as an equivalent fraction over 100.

For example:

$$\frac{2}{5} = \frac{2 \times 20}{5 \times 20} = \frac{40}{100}$$

So  $\frac{2}{5}$  is equal to 40%

- To change a decimal to a percent, move the decimal point two place values to the right and put it over 100.

For example:

$$0.135 = \frac{13.5}{100} = 13.5\%$$

My Notes

## My Notes

## Activity 1

### Self-Check

- Review the first two rows of the table. Then complete the rest of the table.

Question	Percent	Fraction	Reduced Fraction	Decimal
Example	10%	$\frac{10}{100}$	$\frac{1}{10}$	0.1
Example	15%	$\frac{15}{100}$	$\frac{3}{20}$	0.15
a.	45%			
b.			$\frac{1}{4}$	
c.				0.015

- Write  $\frac{1}{3}$  as a decimal and a percent.
- Write 30% as a decimal and a fraction.
- Write 2.5 as a fraction and a percent.



Turn to the solutions at the end of the section and mark your work.

## Explore

## My Notes

### Discounts

Is “25% off” or “\$10.00 off” the better sale? It depends on the original cost of the item. But how can you figure out how much money you’ll save when you are only told the percentage? This next example will show you how to change a percent discount into actual dollar-and-cents savings.

### Example 1

Brandon is looking at a menswear flyer. Dress socks regularly priced at \$7.99 a pair are advertised at 25% off.

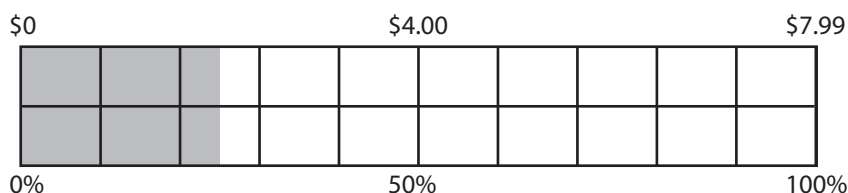


Photo by tadija © 2010

- How much do you save?
- What is the sale price?

### Solution

- 100% of the price is \$7.99  
You save 25% of the price. This has been shaded below.



To find 25% of \$7.99, change 25% to a decimal and multiply.

$$\text{Discount} = 0.25 \times \$7.99$$

$$\text{Discount} = \$1.9975 \text{ (round to the nearest penny)}$$

$$\text{Discount} = \$2.00$$

$$\text{You save } \$2.00.$$

- Sale Price = Regular Price – Discount (Savings)  
Sale Price = \$7.99 – \$2.00  
Sale Price = \$5.99

My Notes

Activity 2  
Try This

In this activity you will calculate sales prices from percent discounts advertised in flyers or on the Internet.

**Step 1:** Select a flyer you received or go to the website of your favourite retailer. Look for at least five items that are reduced by a percent discount. Calculate the dollar discount and the sale price as in Example 1.

1. The first row has been completed, as an example. Complete the table with the five items you found in Step 1. Round calculated prices to the nearest cent.

Item Description	Regular Price	Percent Discount	Dollar Discount	Sale Price
dress socks (1 pair)	\$7.99	25%	\$2.00	\$5.99
a.				
b.				
c.				
d.				
e.				

2. Is there a way to determine the discounted price without first finding the dollar discount? If there is, show how this is done using one of your entries from Question 1.



3. Look online for a “percent calculator,” which may help in checking your table entries. There are a number available for both the computer and cellphone. Find at least three such calculators, and rank them according to suitability and ease of use. Record their web addresses here:

Website #1: \_\_\_\_\_

Ranking: \_\_\_\_\_

Website #2: \_\_\_\_\_

Ranking: \_\_\_\_\_

Website #3: \_\_\_\_\_

Ranking: \_\_\_\_\_



Turn to the solutions at the end of the section and mark your work.

## Bringing Ideas Together

In Explore, you examined price discounts (in percent, %, and in dollar amount, \$). In Example 2 you’ll look at an alternative method you could use to answer these types of questions. Maybe you’ll find that this method suits you better.

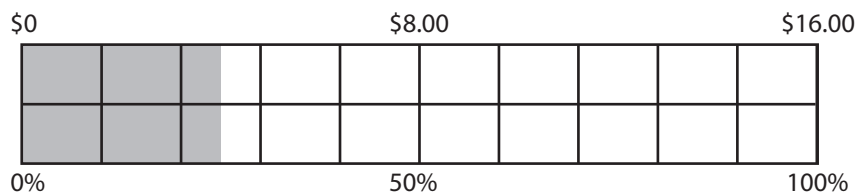
### Example 2

The regular price of a child’s toy guitar is \$16.00. The guitar is on sale for 25% off. What is the sale price?

### Alternate Method

Determine the discounted price by subtracting the percent discount from 100. If the original price is discounted 25%, the discounted price must be  $100\% - 25\% = 75\%$  of the original price. If you look at the image below, the area not shaded is equal to the discounted price, 75%.

My Notes



$$\begin{aligned}\text{Sale price} &= 75\% \text{ of } \$16.00 \\ &= 0.75 \times \$16.00 \\ &= \$12.00\end{aligned}$$

### Activity 3 Self-Check

In the following question you will use the two methods shown in Examples 1 and 2 to find the sale price.

1. A 32" LCD television is regularly \$399.99. This week, the store is offering a 5% discount. What is the sale price?
  - a. Draw a similar visual to the ones used in Example 1 and 2, to better understand the problem.
  - b. Use the method from Example 1 to answer the question.
  - c. Use the method in Example 2 to answer the question.



Turn to the solutions at the end of the section and mark your work.

## Price Increases

The same approach used to find price discounts can be used to find price increases. When would finding percent increases be helpful? Stores, for example, purchase goods from wholesalers for less than their **selling price**. Stores need to add a **markup** to the **wholesale price** to cover costs, such as salaries, rent, and utility bills.

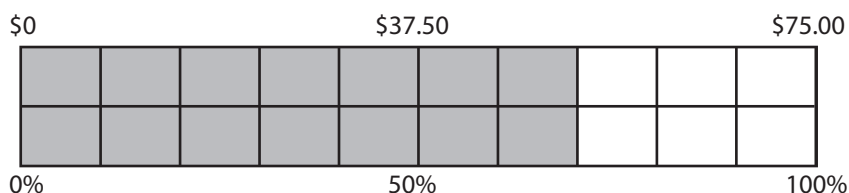
How much do you think the grocery store paid for the pack of gum you bought for \$1.99 last week? You might think of the selling price as the wholesale price plus the markup.

### Example 3

The local electronics store buys a certain brand of digital camera for \$75.00 and marks the price up 70%. What is the dollar markup and what is the selling price?

### Solution

The mark up is 70% of \$75.



### Method 1

First, find the dollar markup.

$$\begin{aligned}
 \text{markup} &= 70\% \text{ of } \$75.00 \\
 &= 0.70 \times \$75.00 \\
 &= \$52.50
 \end{aligned}$$

Then find the selling price.

$$\begin{aligned}
 \text{selling price} &= \text{wholesale price} + \text{markup} \\
 &= \$75.00 + \$52.50 \\
 &= \$127.50
 \end{aligned}$$

**My Notes****Method 2**

Find the selling price first.

The wholesale price was increased by 70%. So, the selling price is 100% of the buying price, plus the 70% increase.

So, the selling price = 100% of the wholesale price + 70% of the wholesale price

$$= 170\% \text{ of the wholesale price}$$

$$= 1.70 \times \$75$$

$$= \$127.50$$

The dollar markup = selling price – wholesale price

$$= \$127.50 - \$75$$

$$= \$52.50$$

**Activity 4****Self-Check**

In the following questions you will use both methods to find the increased prices.

1. The neighbourhood florist has purchased specialty vases for \$9.00 apiece wholesale. The florist intends to mark up the vases 75%. What are the dollar markup and the selling price? Use both methods as shown in Example 3.

2. Taxes are another way prices are increased. When you purchase most things in Canada, you will have to pay additional taxes.

In 2010, in Manitoba the provincial sales tax is 7% and the federal GST is 5%. Fabbio has just purchased a slow cooker listed at \$17.99 from a store in Winnipeg. What was the total cost of his purchase? How much did he pay in taxes?



Turn to the solutions at the end of the section and mark your work.

### Dollar Discounts into Percent Discounts

Often in a sales flyer, the discount is quoted in a dollar value rather than as a percent. In the next part of the lesson, you will convert dollar discounts to percent discounts.



Photo by Marsel82 © 2010

#### Example 4

Dual shock controllers for gaming are \$49.99 after a discount of \$5.00. What was the original price and what is the percent discount? Round to the nearest tenth of a percent.

#### Solution

$$\begin{aligned}\text{original price} &= \text{Sale Price} + \text{Dollar Discount} \\ &= \$49.99 + \$5.00 \\ &= \$54.99\end{aligned}$$

My Notes

To find the percent discount, you must determine what a \$5.00 discount on an original price of \$54.99 is as a percent, or out of 100. Let the percent discount be  $x\%$ .

**Method 1**

Set up a proportion.

$$\frac{\text{Dollar Discount}}{\text{Original Price}} = \frac{\text{Percent Discount}}{100}$$

$$\frac{5.00}{54.00} = \frac{x}{100}$$

$$\frac{100(5.00)}{54.00} = x$$

$$x = 9.092562284\ldots$$

Cross multiply and divide to isolate  $x$ .

The discount is approximately 9.1%.

**Method 2**

Divide the dollar discount by the original price. Then convert to a percent.

$$\frac{\text{Dollar Discount}}{\text{Original Price}} = \frac{5.00}{54.99}$$

$$= 0.09092562824\ldots$$

$$= 9.092562824\ldots\%$$

$$\approx 9.1\%$$

Move the decimal two places to the right.

The discount is approximately 9.1%.

**Example 5**

A clothing store buys a line of men's suits for \$150.00 each from a suit wholesaler. The store owner decides he must mark up the price of each suit by \$90.00 in order to make a profit. What is the percent markup?

**Solution**

Another way to phrase this question is "What percentage is \$90 out of \$150?" We'll show two methods for solving this problem.

**Method 1**

Set up a proportion.

$$\begin{aligned}\frac{x}{100} &= \frac{90}{150} \\ (100)\frac{x}{100} &= \frac{90}{150}(100) \\ x &= 60\end{aligned}$$

The suits have been marked up by 60%.

**Method 2**

Convert a fraction to a percent.

$$\begin{aligned}\frac{\text{markup price}}{\text{wholesale price}} &= \frac{90}{150} \\ &= 0.6 \\ &= 60\%\end{aligned}$$

The suits have been marked up by 60%.

**My Notes**





2. A portable GPS is advertised for \$119.96. This is the price after a \$30.00 discount.
- a. What was the original price?



Photo by Stephen VanHorn © 2010

- b. What is the percent discount? Round your answer to the nearest tenth of a percent.

3. A cellphone store purchases a popular cellphone for \$40.00 wholesale. The store sells the phone for \$69.99.

- a. What is the dollar markup?
- b. What is the percent markup? Round to the nearest tenth of one percent.



Turn to the solutions at the end of the section and mark your work.

My Notes

## My Notes

## Activity 6

## Mastering Concepts

Macey runs a gift store in Whitehorse. She has purchased stone inukshuk souvenirs at a wholesale price of \$40.00 each.

- a. At the beginning of July, Macey marked up the wholesale price by 60%. There are a few inukshuk souvenirs left near the end of the summer. Macey discounts the selling price 25% for her annual clearance sale. What is the discounted price?



Photo by Chris Howey © 2010

- b. Suppose Macey had bought the inukshuks when the wholesaler was having a sale. Assume the discount on the wholesale price was 25%, and then Macey marked up the discounted price by 60%. What would the selling price have been?



Turn to the solutions at the end of the section and mark your work.

## Lesson Summary

## My Notes

If you are interested in a career in retail, one of the mathematical skills you will need is working with percent. You will need to determine appropriate selling prices by calculating the markup required to pay for business expenses and provide for profits. During sales, you will have to calculate discounts.



Photo by Andresr © 2010

In this lesson you analyzed selling prices after applying either a dollar or percent increase or decrease.



## Lesson C

# Currency Exchange

**To complete this lesson, you will need:**

- access to the Internet (optional)
- your calculator

**In this lesson, you will complete:**

- 7 activities

## Essential Questions

- What are currency exchange rates?
- What is the difference between the selling rate and the buying rate when exchanging currencies?
- How are exchange rates used to convert between the Canadian dollar and foreign currencies?

## My Notes

## Focus

During Spring Break, Anna's mother will be attending an Aboriginal studies conference in the Florida Keys. Anna will be travelling with her. This is the first time Anna will be in the United States. Anna is very excited because they might even have time to go to Disney World and Universal Studios!



Photo by Christophe Testi © 2010

Anna and her mother have booked their trip through a local travel agent. The travel agent has been very helpful and has given them advice on what they will need, from passports to American currency. The travel agent has a map on the wall of some of the places she has visited, and Anna thinks to herself, "I bet being a travel agent would be a great career!"

Anna plans to change \$200.00 Canadian dollars into American dollars at the bank. "I wonder," she thinks. "If I didn't spend a cent of the American cash I take with me, would I get the full \$200.00 back if I exchanged it back to Canadian dollars after my trip?"

## Get Started

When you exchange one currency into another, you quite often will need to solve a proportion.

Let's review the types of proportions you would use for exchanging currencies. Work through the following examples and then try Activity 1.

**Example 1**

If one unit costs \$2.15, how much would 20 units cost?

**Solution**

Since 1 unit = \$2.15, then 2 units =  $\$2.15 \times 2$ , and 3 units =  $\$2.15 \times 3$ .  
Following this pattern, then 20 units =  $\$2.15 \times 20 = \$43.00$

**Example 2**

There are 4 red dots for every 7 blue dots. How many red dots would there be if there were 259 blue dots?

**Solution**

Set up a proportion.

$$\frac{\text{red dots}}{\text{blue dots}} = \frac{4}{7}$$

You are told that there are 259 blue dots, so substitute “259” for “blue dots.” Put an “x” where it says red dots.

$$\frac{x}{259} = \frac{4}{7}$$

Cross multiply and divide to isolate x.

$$x = \frac{4(259)}{7}$$

$$x = 148$$

There would be 148 red dots.

## My Notes

## Activity 1

### Self-Check

Solve each problem using the method in either Example 1 or 2.

1. There are 4 squares for every 9 circles. If there are 180 circles, how many squares are there?
2. For every hockey player on the team there are 16 fans in the stands. If there are 12 hockey players on the team, how many fans are in the stands?



Turn to the solutions at the end of the section and mark your work.



## Explore

## My Notes

Have you purchased items over the Internet where prices were given in American dollars, British pounds, or euro (the currency used by countries in the European Common Market)? If you have, you know that you have to convert those currencies into Canadian dollars to comprehend how much the item will cost you.

In the next activity, you will search for particular items on the Internet priced in foreign currencies. This activity will give you an idea whether these other currencies are worth more or less than your Canadian dollar.

### Activity 2 Self-Check

You will need access to the Internet to complete this activity.

Heather is saving her money to buy her first car. She has her eye on a subcompact, fuel-efficient hatchback. She is wondering if she were to buy the car in another country whether she would pay more or less than she would in Canada.



Photo by Maksim Toome © 2010

Country	HEATHER'S RESEARCH	Name of Currency
Canada	\$14 750 CAD	Canadian dollars
United States	\$12 605 USD	United States dollars
United Kingdom	10 256 GBP	British pounds
France	12 190 EUR	European euros
Russia	705 000 RUB	Russian rubles

**My Notes**

1. Is there something you, like Heather, would like to buy? Look up that item on the Internet and find its price in Canada and in at least three other countries. Record the prices in the currency of each country, as well as the name of the currency. Record your research in the table below.

Country	YOUR RESEARCH	Name of Currency
Canada		

2. Is it possible to determine where the item would be the least expensive? Why or why not?



Turn to the solutions at the end of the section and mark your work.

## Currency Exchange Rates

In order to travel to or do business in other countries, you would have to convert your Canadian dollars into the currency used in the other country. For example, if you travelled to Mexico on a winter vacation, you would need to bring Mexican pesos rather than Canadian dollars. Do you know how many Mexican pesos are equivalent to \$1.00 Canadian?



Photo by Maksim Toome © 2010

On February 2, 2010, one Canadian dollar was equal to approximately \$2.13 Mexican pesos. More simply and exactly this is written as:

$$1.00 \text{ CAD} = 2.1271 \text{ MXN}$$

This is an example of a **currency exchange rate**. It tells you how many Mexican pesos you get in exchange for one Canadian dollar.

Currency exchange rates change everyday. This is why the date was given for the exchange rate above. Exchange rates depend on the stock market—so what business and investors are willing to pay for the currency. The value of the Canadian dollar will rise, for example, when there is a demand for Canadian dollars to pay for the goods Canada exports or to invest in Canada.

Conversions between currencies are handled by banks, investment houses, currency exchanges, and other financial institutions. If you were travelling to the United States, you could go to the bank or to a currency exchange kiosk at an airport to buy American dollars.

## Using a Currency Converter

There are lots of online currency converters that you can use to quickly convert between currencies. The Bank of Canada website has a currency converter. You can use this converter to explore exchange rates among major currencies. These rates are updated daily. You can look up current rates or you can explore rates for any date in the past ten years.

My Notes

## My Notes



Go to Bank of Canada–Currency Converter (<http://www.openschool.bc.ca/courses/math/awm10/mod4.html>).

You will need access to the Internet to complete the next activity.

When you're working with the Bank of Canada currency converter in this activity, select the **nominal exchange rate**. The cash rate includes an estimate of the fees commercial banks and other financial institutions charge customers to convert their currency. The nominal rate does not include these transaction fees.

### Activity 3

## Try This

For this **optional** activity you will need your calculator and access to the Internet.

In this activity you will convert foreign currency amounts into Canadian dollars using the Bank of Canada Currency Converter.

You will recall that from Activity 2 that Heather was interested in the prices (exclusive of taxes and other charges) consumers pay in several other countries for a particular subcompact, fuel-efficient hatchback she would love to own. Her research was as follows:

Country	HEATHER'S RESEARCH	Name of Currency
Canada	14 750 CAD	Canadian dollars
United States	12 605 USD	United States dollars
United Kingdom	10 256 GBP	British pounds
France	12 190 EUR	European euros
Russia	705 000 RUB	Russian rubles

My Notes

On February 3, 2010, Heather used the Bank of Canada website to convert the foreign amounts into Canadian dollars to see where the car was least expensive and where it was most expensive! Here are her results:

Country	HEATHER'S RESEARCH	Price in Canadian Dollars as of February 3, 2010	Price in Canadian Dollars as of _____
Canada	14 750 CAD	14 750.00	
United States	12 605 USD	13 372.64	
United Kingdom	10 256 GBP	17 315.20	
France	12 190 EUR	17 983.91	
Russia	705 000 RUB	24 935.85	

It appears the hatchback is least expensive to buy in the United States and most expensive in Russia. The prices in the United Kingdom and in France are similar.

1. Complete the last column of the table, using the Bank of Canada's currency converter for today's date.



Go to Bank of Canada–Currency Converter (<http://www.openschool.bc.ca/courses/math/awm10/mod4.html>).

Once you have the converter open, follow the steps below to complete this activity.

**Step 1:** Select the nominal exchange rate.

**Step 2:** Select the currency you wish to convert from the “From” list.

**Step 3:** Select the currency you wish to exchange into from the “To” list. For this activity, you will be choosing “Canadian dollar” from the “To” list.

My Notes

**Step 4:** Enter the amount you wish to convert, without spaces or any currency symbol, and click “Convert.”

\*Please note: British pound may also be called "UK Pound Sterling."

2. How do your results differ from Heather’s results? Why do you think that is?

3. You will recall that, in Get Started, you looked up foreign prices for an item in which you were interested. Set up a table for your item, just like Heather did for her hatchback. Use the Bank of Canada currency converter for today’s date.

Country	YOUR RESEARCH	Name of Currency	Price in Canadian Dollars as of _____
Canada			

Based on Canadian dollars, where is your item the most expensive? Where is your item the least expensive?

4. The Bank of Canada's currency converter isn't the only currency converter on the web. Search for at least three others. You may wish to look for an application you can download to your cellphone. Rank the calculators you find for accuracy and ease of use.

My Notes

CURRENCY CONVERTER (description or web address)	Accuracy (rank from 1 – 3)	Ease of Use (rank from 1 – 3)



Turn to the solutions at the end of the section and mark your work.

## Bringing Ideas Together

In Explore, you compared prices in foreign currencies to prices in Canadian dollars. The Bank of Canada currency converter is an efficient tool for making these comparisons. However, you may not always have access to an online currency converter. **Nominal exchange rates** are printed in the business or financial sections of most large, daily newspapers.

My Notes

The following table was compiled from rates available on February 3, 2010. In this table foreign currencies are compared to the Canadian dollar. Most tables are much more extensive, listing many more currencies.

	Currency Unit	Units per 1.00 CAD	Number of CAD per Unit
ARS	Argentina Pesos	3.611 723 7028	0.276 876 1074
AUD	Australia Dollars	1.068 204 8782	0.936 150 0030
BMD	Bermuda Dollars	0.941 902 1079	1.061 681 4546
BRL	Brazil Reals	1.748 147 6561	0.572 034 0593
CAD	Canada Dollars	1.000 000 0000	1.000 000 0000
CLP	Chile Pesos	506.978 809 5743	0.001 972 4690
CNY	China Yuan Renminbi	6.431 307 6574	0.155 489 3737
COP	Colombia Pesos	1846.068 238 8706	0.000 541 6918
CRC	Costa Rica Colones	520.400 914 6117	0.001 921 5954
DKK	Denmark Kroner	5.047 264 9501	0.198 127 1064
DOP	Dominican Republic Pesos	34.049 761 2004	0.029 368 7816
EGP	Egypt Pounds	5.139 017 7605	0.194 589 7147
EUR	Euro	0.677 984 6605	1.474 959 6242
HKD	Hong Kong Dollars	7.315 705 8239	0.136 692 2104
ISK	Iceland Kronur	119.859 046 6140	0.008 343 1333
INR	India Rupees	43.431 106 7699	0.023 024 9716
ILS	Israel New Shekels	3.491 919 7863	0.286 375 4213
JMD	Jamaican Dollars	84.042 384 0425	0.011 898 7581
JPY	Japan Yen	85.767 463 9706	0.011 659 4330
JOD	Jordan Dinars	0.667 808 5864	1.497 435 0740
KES	Kenya Shillings	71.537 462 2201	0.013 978 6899
LBP	Lebanon Pounds	1415.207 917 1116	0.000 706 6100
MYR	Malaysia Ringgits	3.218 479 5027	0.310 705 7227
MXN	Mexico Pesos	12.218 467 4816	0.081 843 3246
NZD	New Zealand Dollars	1.331 680 1486	0.750 931 0708
NOK	Norway Kroner	5.534 052 4056	0.180 699 4092
PKR	Pakistan Rupees	80.009 364 0737	0.012 498 5370
PEN	Peru Nuevos Soles	2.686 915 6931	0.372 173 9400
PHP	Philippines Pesos	43.258 179 4920	0.023 117 0154
PLN	Poland Zlotych	2.720 219 2604	0.367 617 4250
RUB	Russia Roubles	28.142 067 0148	0.035 533 9926
SAR	Saudi Arabia Riyals	3.532 198 5428	0.283 109 7935



	Currency Unit	Units per 1.00 CAD	Number of CAD per Unit
ZAR	South Africa Rand	7.078 298 9702	0.141 276 8808
SEK	Sweden Kronor	6.859 767 2485	0.145 777 5408
CHF	Switzerland Francs	0.997 856 3900	1.002 148 2150
THB	Thailand Baht	31.162 830 3754	0.032 089 5114
TRY	Turkey Lira	1.407 776 5262	0.710 340 0159
GBP	United Kingdom Pounds	0.592 765 8546	1.687 006 7535
USD	United States Dollars	0.941 902 1079	1.061 681 4546
VEF	Venezuela Bolivares Fuertes	4.050 179 0639	0.246 902 6639

## My Notes

Take a look at Example 1 to see how this table is used.

### Example 1

As part of a school tour, Eddy and several of his classmates are travelling in France. They have just stopped to eat in a small cafe. The luncheon special costs €12.00.

- How might Eddy and his friends use their knowledge about the relative value of the Canadian dollar and the euro to estimate the cost of the special in Canadian dollars?
- Use the table to determine the cost, in Canadian dollars, of the luncheon special to the nearest cent.

### Solution

- In France, the euro is used as their currency. From the table use the following information.

	Currency Unit	Units per 1.00 CAD	Number of CAD per Unit
EUR	euro	0.677 984 6605	1.474 959 6242

What this means, is that one Canadian dollar buys you approximately €0.68.

For this problem, we are trying to convert from the new currency to Canadian dollars. So for this problem, you would use the last column. The last column tells you that:

One euro costs approximately \$1.47 Canadian.

### My Notes

Eddy and his friends can estimate the cost of their €12.00 lunch, by overestimating that for each €1 they would be paying \$1.50 Canadian.

$$€1 \approx \$1.50$$

$$€2 \approx \$1.50 \times 2$$

$$€3 \approx \$1.50 \times 3$$

$$\text{So, } €12 \approx \$1.50 \times 12 = \$18 \text{ Canadian}$$

- b. To convert the 12 Euros to Canadian dollars, use the value given in the last column of the table.

$$\text{Use, } €1.00 = \$1.4749596242.$$

$$\begin{aligned} €12.00 &= \$1.4749596242 \times 12 \\ &= \$17.69951549 \\ &\approx \$17.70 \end{aligned}$$

The lunch special costs \$17.70.

### Example 2

Carl has a cousin in England who is a plumbing and heating installation and repair technician. Last year, Carl's cousin earned £32 000. Carl has a similar job in Canada and earned \$54 000. Compare their earnings.

### Solution

From the table, use the following information.

Currency Unit	Per 1.00 CAD	Number of CAD per Unit
GBP (United Kingdom Pounds)	0.5927658546	1.6870067535

We'll use these exchange rates to convert from pounds to Canadian dollars. Once we know Carl's cousin's salary in Canadian dollars, we can compare it to Carl's salary. We can solve this problem in several ways. Here, we'll work through two methods.

**Method 1**

$$1\text{£} = \$ \quad \text{CAD}$$

$$1\text{£} = \$1.6870067535 \text{ CAD}$$

$$(32\,000)(1\text{£}) = (\$1.6870067535 \text{ CAD})(32\,000)$$

$$32\,000 \text{ £} = \$53\,984.22 \text{ CAD}$$

$$\$54\,000 - \$53\,984.22 = \$15.78$$

Carl earned \$15.78 more than his cousin last year.

**Method 2**

Set up a proportion. Make sure the units of the numerators are the same and the units of the denominators are the same.

$$\frac{x}{32\,000 \text{ £}} = \frac{\$1.6870067535}{1\text{£}}$$

$$\cancel{(32\,000)} \frac{x}{\cancel{32\,000} \text{ £}} = \frac{\$1.6870067535}{1\text{£}} \cancel{(32\,000)}$$

$$x = \$53\,984.22$$

$$\$54\,000 - \$53\,984.22 = \$15.78$$

Carl earned \$15.78 more than his cousin last year.

Both methods result in the same answer. Notice that the calculations were the same for both methods. The difference is in how the solutions were set up and organized. Give both methods a try and use whichever method makes the most sense to you!



To view the animated solution for this example, go and look at *Currency Conversion* ([http://media.openschool.bc.ca/osbcmmedia/math/mathawm10/html/ma10\\_currency.html](http://media.openschool.bc.ca/osbcmmedia/math/mathawm10/html/ma10_currency.html)).

## My Notes

**Activity 4**  
**Self-Check**

Complete these questions by using the currency-exchange table from Example 1 and 2.

1. Janice is holidaying in Mexico. She sees a silver bracelet in a gift shop for 800.00 MXN.
  - a. How might Janice estimate the cost in Canadian dollars?
  
  
  
  
  
  
  
  
  
  
  - b. Use the table to determine the cost in Canadian dollars to the nearest cent.
  
2. On an online shopping website, a right-handed composite goalie stick is advertised for 65.00 USD. Excluding transaction fees, taxes, and shipping, what is the price in Canadian dollars?

3. Hera has just opened a US-dollar investment account. She wishes to invest 12 450.00 CAD. What is that amount in US dollars?

My Notes

4. Why are there so many decimal places given in currency-exchange tables?



Turn to the solutions at the end of the section and mark your work.

### Using Conversion Factors

If you look at the foreign-exchange table, you will notice that both the conversion factors for changing Canadian dollars into a foreign currency and the conversion factor for changing a foreign currency into Canadian dollars are given. This is very convenient. If you were converting between Chinese yuan and Canadian dollars, you would simply refer to the following line in the table.

	Currency Unit	Units per 1.00 CAD	Number of CAD per Unit
CNY	China Yuan Renminbi	6.431 307 6574	0.155 489 3737

To convert 100.00 CDN to Chinese yuan, you would use the first conversion factor and multiply.

$$\begin{aligned}
 1.00 \text{ CAD} &= 6.431\,307\,6574 \text{ CNY} \\
 100.00 \text{ CAD} &= 6.431\,307\,6574 \text{ CNY} \times 100 \\
 100.00 \text{ CAD} &\approx 643.13 \text{ CNY}
 \end{aligned}$$

## My Notes

To convert CNY 100.00 to Canadian dollars, you would use the second conversion factor and multiply.

$$1.00 \text{ CNY} = 0.155\,489\,3737 \text{ CAD}$$

$$100.00 \text{ CNY} = 100 \times 0.155\,489\,3737 \text{ CAD}$$

$$100.00 \text{ CNY} = 15.55 \text{ CAD}$$

However, what would you do if you only knew one conversion factor? This is where knowing how to set up proportions becomes very useful.

**Example 3**

Marcel is reviewing his financial records. On January 22, 2003, he transferred 500.00 CAD into a US-dollar savings account. If, on that date,  $1.00 \text{ USD} = 1.532 \text{ CAD}$ , what was Marcel's deposit in US dollars? Disregard fees and commissions.

**Solution**

Set up a proportion.

$$\frac{\text{US dollar}}{\text{Canadian dollar}} = \frac{1 \text{ USD}}{1.532 \text{ CAD}}$$

In this example, you are given \$500 Canadian, and you are asked to find what this would be in US dollars. Replace “Canadian dollar” with the \$500 and put “ $x$ ” in for “US dollar”.

$$\frac{x}{500} = \frac{1}{1.532} \text{ To solve the proportion, cross-multiply and divide.}$$

$$x = \frac{(500)1}{1.532}$$

$$x = 326.3707572\dots$$

$$x = 326.37$$

On January 22, 2003, Marcel deposited 326.37 USD.

## Activity 5

### Self-Check

## My Notes

1. On March 20, 2009, Victor was in Peru on his way to the Inca city of Machu Picchu. He was going to witness the sun on the Intihuatana stone at noon during the equinox. He spent 450 nuevos soles (PEN). That day, 1.00 CAD was equal to 2.5189 PEN. What did Victor spend in Canadian dollars?

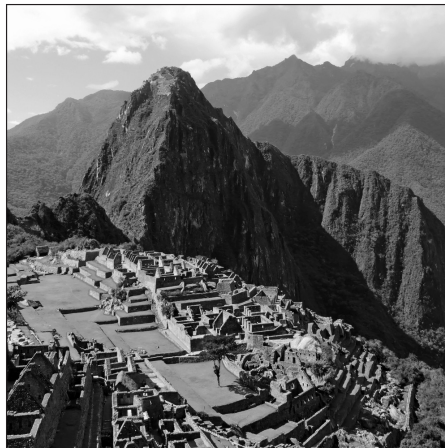


Photo by Amy Nichole Harris © 2010

2. On October 1, 2009, the Cardinal family stayed at a motel in Sidney, Australia. The charge for the room was 150.00 AUD. If on that date, 1.00 CAD was equal to 1.0632 AUD, what was the room charge in Canadian dollars?

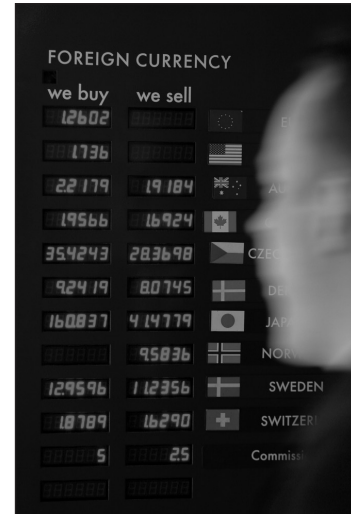


Turn to the solutions at the end of the section and mark your work.

## My Notes

**Buy and Sell Exchange Rates**

Up to this point in the lesson, you have worked with nominal currency exchange rates. There were no transaction fees. However, banks and other financial institutions charge a percentage of the currency exchange as their commission. This commission is often 4%. These fees may vary depending on whether the transaction is in cash, involves a cheque, is a credit card transaction, or is an investment. The fees also depend on the amount of the exchange, and the fees may be negotiable.



FOREIGN CURRENCY		
we buy	we sell	
12602		EURO
1736		UNITED STATES
22179	19184	NEW ZEALAND
19566	16924	CANADA
354243	283698	CZECH REPUBLIC
92419	80745	DENMARK
160837	414779	JAPAN
	95836	NORWAY
129596	112356	SWEDEN
18789	16290	SWITZERLAND
20005	25	Commission

Photo by Mr Doomits © 2010

For customers wishing to exchange currency, banks will advertise **buy and sell exchange rates**. These exchange rates for selling and buying are different from one another, and they both differ from the nominal exchange rates because they include fees.

**Example 4**

Yolanda walks into the bank and asks to exchange \$100 Canadian dollars for US dollars. The teller consults the “We Sell” column, because the bank is selling US dollars to Yolanda.

The rate is: 1.00 USD = 1.0855 CAD

- What will the amount be in US dollars?
- If Yolanda changes her mind shortly afterwards and returns to the bank to exchange the US dollars back to Canadian dollars, the teller will consult the “We Buy” column. The rate is 1.00 USD = 1.0303 CAD. How much money will Yolanda receive in Canadian dollars?
- What were the total fees for the two transactions?



**Solution**

- a. Set up a proportion.

$$\frac{\text{USD}}{\text{CAD}} = \frac{1.00 \text{ USD}}{1.0855 \text{ CAD}}$$

In this example, you are told that Yolanda has \$100 CAD, and you are asked to find what this would be in US dollars. Replace “Canadian dollars” with the 100 and put “ $x$ ” in for “US dollar”.

$$\frac{x}{100} = \frac{1}{1.0855}$$

$$x = \frac{(100)(1)}{1.0855}$$

$$x = 92.12344542\dots$$

$$x = 92.12$$

Yolanda will receive 92.12 USD for her 100.00 CAD.

- b. To convert the 92.12 US dollars back to Canadian dollars, use

$$1 \text{ USD} = 1.0303 \text{ CAD}$$

$$1 \text{ USD} = 1.0303 \text{ CAD}$$

$$2 \text{ USD} = 1.0303 \text{ CAD} \times 2$$

$$3 \text{ USD} = 1.0303 \text{ CAD} \times 3$$

$$\begin{aligned} \text{So, } 92.12 \text{ USD} &= 1.0303 \text{ CAD} \times 92.12 \text{ CAD} \\ &= 94.911236 \text{ CAD} \\ &\approx 94.91 \text{ CAD} \end{aligned}$$

Yolanda receives \$94.91 CAD.

- c. Yolanda started with \$100 Canadian and now only has \$94.91 Canadian.

$$\begin{aligned} \text{total fees} &= 100.00 \text{ CAD} - 94.91 \text{ CAD} \\ &= 5.09 \text{ CAD} \end{aligned}$$

## My Notes

## Activity 6

### Self-Check

Refer to this table to answer the following questions.

Country	Currency Name/ Currency Code	Rate Bank Will Buy from You	Rate Bank Will Sell to You
	Euro (EUR)	1.4121	1.5325
Sweden	Krona (SEK)	0.1387	0.01532
Scotland	Scottish Pound (SCO)	1.6285	1.7452

1. Xena has been on a holiday in Germany. On her return to Canada, she has €350.12 in cash. She exchanges the euros for Canadian dollars. How much does she receive in Canadian money?
2. Wilma is planning a trip to Sweden. She goes to the bank to exchange 500.00 CAD for Swedish kronas. How much will she receive in Swedish kronas?

3. Quincy has turned 17. He received a cheque for £50.00 from his uncle in Scotland. How much will Quincy receive in Canadian dollars from the bank?

**My Notes**

Turn to the solutions at the end of the section and mark your work.

**Activity 7****Mastering Concepts**

On Thursday, the exchange rate for the Australian dollar was  $1.00 \text{ CAD} = 1.0692 \text{ AUD}$ . On the same day, the exchange rate for the euro was  $1.00 \text{ CAD} = 0.6678 \text{ EUR}$ . Complete the following conversion. Round to 4 decimal places.

$$1.00 \text{ EUR} = ? \text{ AUD}$$



Turn to the solutions at the end of the section and mark your work.

## My Notes

## Lesson Summary

If you are interested in a career in financial services, such as banking or investment, you will handle currencies from across the world. Currency exchange is also a critical skill in import and export, small and large businesses involving foreign suppliers or customers, travel agencies, airlines, cross-border trucking, and other industries, just to name a few.

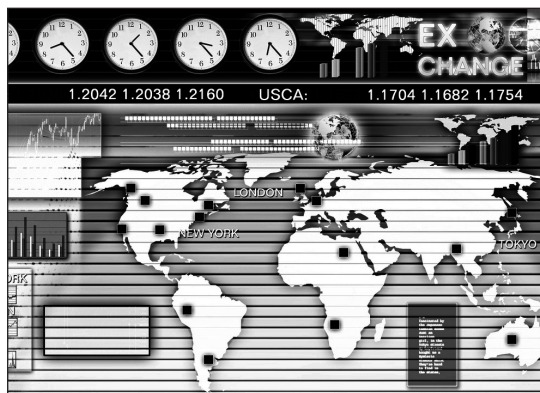


Photo by Stasys Eidiejus © 2010

In a highly interconnected world, as the map pictured suggests, all Canadians need this skill.

In this lesson you examined nominal currency exchange rates and exchange rates reflecting transaction fees charged by financial institutions, such as banks and credit unions. You used various tools to solve problems involving these rates. These tools included online currency converters, tables, proportional reasoning, and conversion factors.

# Making Purchases— Appendix

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# Solutions

## Lesson A: Unit Prices

### Lesson A: Activity 1: Self Check

- a. A kilogram weighs more than a pound. So, to convert pounds into kilograms, divide by 2.2.

$$8 \div 2.2 = 3.636363\dots$$

8 lb is approximately 3.6 kg.

- b. To convert kilograms into pounds, see the pattern.

$$1 \text{ kg} = 2.2 \text{ lb},$$

$$\text{So } 2 \text{ kg} = 2.2 \text{ lb} \times 2$$

$$\text{And } 3 \text{ kg} = 2.2 \text{ lb} \times 3$$

$$\text{Following this pattern, } 6.2 \text{ kg} = 2.2 \text{ lb} \times 6.2 = 13.64 \text{ lb}$$

6.2 kg is approximately 13.6 lb.

- c. To convert kilograms into pounds, see the pattern.

$$1 \text{ kg} = 2.2 \text{ lb},$$

$$\text{So } 2 \text{ kg} = 2.2 \text{ lb} \times 2$$

$$\text{And } 3 \text{ kg} = 2.2 \text{ lb} \times 3$$

$$\text{Following this pattern, } 35 \text{ kg} = 2.2 \text{ lb} \times 35 = 77 \text{ lb}$$

35 kg is approximately 77 lb.

- d. A kilogram weighs more than a pound. So, to convert pounds into kilograms, divide by 2.2.

$$115 \div 2.2 = 52.272727\dots$$

115 lb is approximately 52.3 kg.

**Lesson A: Activity 2: Self Check**

The package price is \$1.39 for 150 g of jellybeans. What you need to find out is what 100 g of the package, would cost. Then you can compare this to the bulk bin price.

Do this by setting up a proportion.

$$\frac{\$1.39}{150\text{g}} = \frac{x}{100\text{g}}$$

cross multiply

$$\frac{100(1.39)}{150} = x$$

multiply the numerators then  
divide by the denominator

$$0.9266... = x$$

So the packaged jellybeans cost \$0.93 for every 100 g of jellybeans. This is more expensive than the bulk price of \$0.49/100g. Bulk is the better buy.

**Lesson A: Activity 3: Try This**

1.

Item Description	Bulk Price/100 g	Package Size	Package Price	Package Price/100g
baking almonds	\$0.99/100 g	250 g	\$7.99	\$3.20/100 g

Answers will vary. Students can use the calculator method or mental calculations with approximate answers to compare the bulk and packaged prices.



2. Answers will vary.
3. Answers will vary. Many packaged items, have re-sealable openings to keep food items fresher. Bulk usually only offers thin plastic bags and twist ties. Freshness of bulk items at times can be an issue.

### Lesson A: Activity 4: Self-Check

In the following questions you will convert prices between pounds and kilograms.

1. a. Remember that  $1 \text{ kg} \approx 2.2 \text{ lb}$  and that in this problem, 1 lb costs \$4.99.  
 Multiply by 2.2.  
 $1 \text{ kg} \approx 2.2 \times \$4.99$   
 $1 \text{ kg} \approx 10.978$   
 $1 \text{ kg} \approx \$10.98$   
 T-bone steaks cost \$10.98/kg.
- b. Remember that  $1 \text{ kg} \approx 2.2 \text{ lb}$  and that in this problem, 1 lb costs \$4.99 or approximately \$5.  
 Use the approximated unit price of \$5.  
  
 Step 1:  
 Multiply by 2.  
 $2 \times \$5 = \$10$   
  
 Step 2:  
 Take 20% of \$5 by finding 10%, and then doubling. You know that 10% of \$5 is \$0.50. To find 20%, double \$0.50, which is \$1.  
  
 Step 3:  
 Add the results of Step 1 and Step 2 together.  
 $= \$10 + \$1$   
 $= \$11$   
  
 So the price for one kilogram is approximately \$11.
- c. Stores might advertise prices by the pound rather than by the kilogram, because the prices appear less expensive when advertised by the pound. A price of \$4.99/lb is less of a shock than \$10.98/kg.

2. Remember  $1 \text{ kg} \approx 2.2 \text{ lb}$  and that in this problem,  $1 \text{ kg}$  costs  $\$4.38$ .

Notice that in this problem, you are converting from  $\text{kg}$  to  $\text{lbs}$ . So instead of multiplying by  $2.2$ , in this case, you would divide by  $2.2$

$$1 \text{ lb costs} \approx \$4.38 \div 2.2$$

$$1 \text{ lb costs} \approx \$1.9909\dots$$

$$1 \text{ lb costs} \approx \$1.99$$

Chicken thighs cost  $\$1.99/\text{lb}$ .

### Lesson A: Activity 5: Self-Check

1. a. Since the unit prices are given to the nearest tenth of a cent, use cents in your calculations. So  $\$0.55 = 55\text{¢}$ .

Set up a proportion. Let  $x$  be the price per  $100 \text{ mL}$ .

$$\frac{55}{300 \text{ mL}} = \frac{x}{100 \text{ mL}}$$

$$\frac{100(55)}{300} = x$$

$$18.333333\dots = x$$

The unit price label reads  $18.3\text{¢}/100\text{mL}$ .

- b. Based on price alone, the  $284\text{-mL}$  can of tomato soup selling for  $\$0.49$  is the better buy.

2. First, find the cost/ $100 \text{ g}$  of the  $685\text{-g}$  size.

Since the unit prices are given to the nearest tenth of a cent, use cents in your calculations. So  $\$3.25 = 325\text{¢}$ .

Set up a proportion. Let  $x$  be the price per  $100 \text{ g}$ .

$$\frac{325}{685 \text{ g}} = \frac{x}{100 \text{ g}}$$

$$\frac{100(325)}{685} = x$$

$$47.44525547\dots = x$$

The unit price label reads  $47.4\text{¢}/100 \text{ g}$ .

Next, find the cost/100 g of the 1.9-kg size.

Since the unit prices are given to the nearest tenth of a cent, use cents in your calculations. So  $\$9.99 = 999\text{¢}$

Change the measure of 1.9 kg to grams.

$$1.9 \text{ kg} = 1.9 \times 1000 \text{ g}$$

$$1.9 \text{ kg} = 1900 \text{ g}$$

Set up a proportion. Let  $x$  be the price per 100 g.

$$\frac{999}{1900 \text{ g}} = \frac{x}{100 \text{ g}}$$

$$\frac{100(999)}{1900} = x$$

$$52.57894737... = x$$

The unit price label reads  $52.6\text{¢}/100 \text{ g}$ . This is more than  $47.4\text{¢}/100 \text{ g}$ . So, the 685-g box is the better buy.

3. Calculate the unit price for the 1.69-kg size.

Set up a proportion. Let  $x$  be the price per 1 kg.

$$\frac{5.79}{1.69 \text{ kg}} = \frac{x}{1 \text{ kg}}$$

$$\frac{1(5.79)}{1.69} = x$$

$$3.426035503... = x$$

The 1.69 kg size sells for  $\$3.43/\text{kg}$ .

Calculate the unit price for the 2.83 kg size.

Set up a proportion. Let  $x$  be the price per 1 kg.

$$\frac{8.49}{2.83 \text{ kg}} = \frac{x}{1 \text{ kg}}$$

$$\frac{1(8.49)}{2.83} = x$$

$$3 = x$$

The 2.83-kg size sells for  $\$3.00/\text{kg}$ .

The 2.83-kg size is the better buy!

4. The answer is to be given in cents. The 16-roll size sells for \$8.79 which is 879¢.

Divide by 16, to find the price of one roll.

$$879\text{¢} \div 16 = 54.9375 \approx 54.9\text{¢}$$

The 24-roll size sells for \$10.49, or 1049¢.

Divide by 24, to find the price of one roll.

$$1049\text{¢} \div 24 = 43.7083333\ldots\text{¢} \approx 43.7\text{¢}$$

The 24-roll size is the better buy.

### Lesson A: Activity 6: Mastering Concepts

Let  $x$  be the price of 1 kg of gold.

Set up a proportion. Because you must use the same units in the proportion, use 31.1034668 g for 1 oz and 1000 g for 1 kg.

$$\frac{x}{1000 \text{ g}} = \frac{\$1156.83}{31.1034668 \text{ g}}$$

$$x = \frac{100(1156.83)}{31.1034668}$$

$$x = 37193.96011$$

$$x = 37193.960$$

The price of 1 kg of gold on January 31, 2010, was \$37 193.96 in Canadian dollars.

## Lesson B: Price Increases and Decreases

### Lesson B: Activity 1: Self Check

1.

Question	Percent	Fraction	Reduced Fraction	Decimal
a.	45%	$\frac{45}{100}$	$\frac{9}{20}$	0.45
b.	25%	$\frac{25}{100}$	$\frac{1}{4}$	0.25
c.	1.5%	$\frac{1.5}{100}$	$\frac{3}{200}$	1.5

2.  $\frac{1}{3} = 1 \div 3$   
 $= 0.333\ldots$

Move the decimal two places to the right and put that value over 100. Leave whatever is left after the decimal place.

$$\frac{33.333\ldots}{100} = 33.333\ldots\%, \text{ or } 33\frac{1}{3}\%$$

3.  $30\% = \frac{30}{100}$  which can be reduced to  $\frac{3}{10}$

As a decimal, 30% is  $3 \div 10 = 0.3$

4. 2.5 is read as 2 and 5 tenths and written as  $2\frac{5}{10}$ .

As an improper fraction  $2\frac{5}{10}$  is  $\frac{25}{10}$ . Reduced, this fraction becomes

$$\frac{25 \div 5}{10 \div 5} = \frac{5}{2}.$$

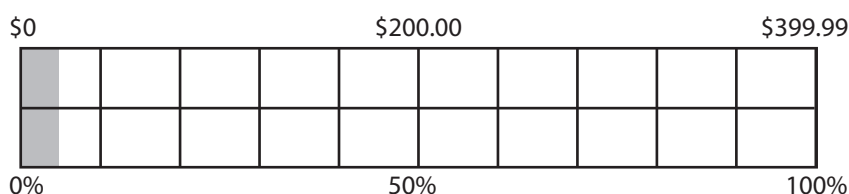
As a percent,  $2.5 = \frac{250}{100}$  which equals 250%.

### Lesson B: Activity 2: Try This

1. Answers will vary. You will check the accuracy of your answers in question 2.
2. Answers will vary. For example, students may realize that to find the sale price of an item that is discounted by 20% they can calculate 80% of the regular price.
3. Answers will vary.

### Lesson B: Activity 3: Self Check

1. a.



- b. Method 1: First determine the dollar discount. Then subtract the dollar discount to find the sale price.

$$\begin{aligned}
 \text{dollar discount} &= 5\% \text{ of } \$399.99 \\
 &= 0.05 \times \$399.99 \\
 &= \$19.9995 \text{ (round to nearest penny)} \\
 &\approx \$20.00
 \end{aligned}$$

$$\begin{aligned}
 \text{Sale price} &= \text{regular price} - \text{dollar discount} \\
 &= \$399.99 - \$20.00 \\
 &= \$379.99
 \end{aligned}$$

- c. Method 2: Determine the discounted price by subtracting the percent discount from 100%. If the original price is discounted 5%, the sale price must be  $100\% - 5\% = 95\%$  of the original price. Remember that 95% is represented by the area not shaded.

$$\begin{aligned}
 \text{Sale price} &= 95\% \text{ of } \$399.99 \\
 &= 0.95 \times \$399.99 \\
 &= \$379.9905 \text{ (round to the nearest penny)} \\
 &\approx \$379.99
 \end{aligned}$$

**Lesson B: Activity 4: Self Check****1. Method 1:**

Find the dollar markup first.

$$\begin{aligned}\text{markup} &= 75\% \text{ of } \$9.00 \\ &= 0.75 \times \$9.00 \\ &= \$6.75\end{aligned}$$

Then find the selling price.

$$\begin{aligned}\text{selling price} &= \text{wholesale price} + \text{markup} \\ &= \$9.00 + \$6.75 \\ &= \$15.75\end{aligned}$$

**Method 2:**

Find the selling price first. The wholesale price was increased 75%. So the selling price is  $100\% + 75\% = 175\%$  of the wholesale price. This time the wholesale price = 100%.

$$\begin{aligned}\text{selling price} &= 175\% \text{ of } \$9.00 \\ &= 1.75 \times \$9.00 \\ &= \$15.75\end{aligned}$$

Then find the dollar markup

$$\begin{aligned}\text{markup} &= \text{selling price} - \text{wholesale price} \\ &= \$15.75 - \$9.00 \\ &= \$6.75\end{aligned}$$

**2. Method 1:**

Calculate the amount of each tax. Then, add this to the slow cooker price.

$$\begin{aligned}7\% \text{ sales tax on } \$17.99 &= 7\% \text{ of } \$17.99 \\ &= 0.07 \times \$17.99 \\ &= \$1.2593 \\ &= \$1.26\end{aligned}$$

$$\begin{aligned}5\% \text{ sales tax on } \$17.99 &= 5\% \text{ of } \$17.99 \\ &= 0.05 \times \$17.99 \\ &= \$0.8995 \\ &= \$0.90\end{aligned}$$

$$\text{Total tax} = \$1.26 + \$0.90 = \$2.16$$

$$\text{Total cost of purchase} = \$17.99 + \$2.16 = \$20.15$$

**Method 2**

You pay 100% of the slow cooker price, plus 12% of this price in taxes.

The total price, including taxes, is  $100\% + 12\% = 112\%$ .

Total price = 112% of \$17.99

$$= 1.12 \times \$17.99$$

$$= \$20.1488$$

$$\approx \$20.15$$

Tax paid = Total Price – Price before taxes

$$= \$20.15 - \$17.99$$

$$= \$2.16$$

**Lesson B: Activity 5: Self Check**

1. a. original price = sale price + discount

$$= \$29.99 + \$30.00$$

$$= \$59.99$$

- b. Let the percent discount be  $x$ .

Method 1:

Set up a proportion.

$$\frac{\text{Dollar Discount}}{\text{Original Price}} = \frac{\text{Percent Discount}}{100}$$

$$\frac{30}{59.99} = \frac{x}{100}$$

$$\frac{100(30)}{59.99} = x$$

$$x = 50.00833472\dots$$

$$x = 50.0$$

The discount is approximately 50.0%. This makes sense because \$59.99 is just one cent less than \$60. Also, 50% of \$60.00 is \$30.00.

Method 2:

Divide the dollar discount by the original price. Then convert to a percent.



$$\frac{\text{Dollar Discount}}{\text{Original Price}} = \frac{30.00}{59.99}$$

$$\begin{aligned} &= 0.5000833472 \\ &= 50.00833472\% \\ &\approx 50.0\% \end{aligned}$$

Move the decimal point  
two places to the right.

The discount is approximately 50.0%.

$$\begin{aligned} 2. \quad a. \quad \text{original price} &= \text{sale price} + \text{discount} \\ &= \$119.96 + \$30.00 \\ &= \$149.96 \end{aligned}$$

b. Let the percent discount be  $x$ .

Method 1:

Set up a proportion.

$$\frac{\text{Dollar Discount}}{\text{Original Price}} = \frac{\text{Percent Discount}}{100}$$

$$\frac{30}{149.96} = \frac{x}{100}$$

$$\frac{100(30)}{149.96} = x$$

$$x = 20.00533476\ldots$$

$$x = 20.0$$

The discount is approximately 20.0%.

Method 2:

Divide the dollar discount by the original price. Then convert to a percent.

$$\frac{\text{Dollar Discount}}{\text{Original Price}} = \frac{30.00}{149.96}$$

$$= 0.2000533476\ldots$$

$$= 20\%$$

Move the decimal point  
three places to the right.

The discount is approximately 20.0%.

$$\begin{aligned} 3. \quad a. \quad & \text{dollar markup} = \text{selling price} - \text{wholesale price} \\ & = \$69.99 - \$40.00 \\ & = \$29.99 \end{aligned}$$

b. Method 1:

Set up a proportion. Let the percent markup be  $x$ .

$$\frac{\text{Dollar Markup}}{\text{Wholesale Price}} = \frac{\text{Percent Markup}}{100}$$

$$\frac{29.99}{40} = \frac{x}{100}$$

$$\begin{aligned} \frac{100(29.99)}{40} &= x \\ x &= 74.975 \\ x &= 75.0 \end{aligned}$$

The markup is approximately 75.0%.

Method 2:

Divide the dollar markup by the wholesale price. Then convert to a percent.

$$\frac{\text{Dollar Markup}}{\text{Wholesale Price}} = \frac{29.99}{40}$$

$$\begin{aligned} &= 0.74975 \\ &= 74.975\% \\ &= 75\% \end{aligned}$$

Move the decimal point two places to the right.

The markup is approximately 75.0%.

**Lesson B: Activity 6: Mastering Concepts**

- a. wholesale price = \$40.00; markup = 60%

$$\begin{aligned}\text{dollar markup} &= 60\% \text{ of } \$40.00 \\ &= 0.60 \times \$40.00 \\ &= \$24.00\end{aligned}$$

$$\begin{aligned}\text{selling price} &= \text{wholesale price} + \text{markup} \\ &= \$40.00 + \$24.00 \\ &= \$64.00\end{aligned}$$

$$\text{discount} = 25\%$$

$$\begin{aligned}\text{dollar discount} &= 25\% \text{ of } \$64.00 \\ &= 0.25 \times \$64.00 \\ &= \$16.00\end{aligned}$$

$$\begin{aligned}\text{discounted price} &= \text{regular price} - \text{discount} \\ &= \$64.00 - \$16.00 \\ &= \$48.00\end{aligned}$$

- b. First calculate a 25% discount of the wholesale price.

$$\begin{aligned}\text{dollar discount} &= 25\% \text{ of } \$40.00 \\ &= 0.25 \times \$40.00 \\ &= \$10.00\end{aligned}$$

$$\begin{aligned}\text{discounted price} &= \$40.00 - \$10.00 \\ &= \$30.00\end{aligned}$$

Now, mark up the discounted price by 60%.

$$\begin{aligned}\text{dollar markup} &= 60\% \text{ of } \$30.00 \\ &= 0.60 \times \$30.00 \\ &= \$18.00\end{aligned}$$

$$\begin{aligned}\text{final price} &= \$30.00 + \$18.00 \\ &= \$48.00\end{aligned}$$

## Lesson C: Currency Exchange

### Lesson C: Activity 1: Self Check

1. Set up a proportion.

$$\frac{\text{squares}}{\text{circles}} = \frac{4}{9}$$

$$\frac{x}{180} = \frac{4}{9}$$

$$x = \frac{(180)4}{9}$$

$$x = 80$$

There would be 80 squares.

2. You could use either method for this problem.

Method from Example 1:

1 hockey player = 16 fans,

So 2 players =  $16 \times 2$  fans,

And 3 players =  $16 \times 3$  fans.

Continuing this pattern, 12 players =  $16 \times 12 = 192$  fans.

Method from Example 2:

Set up a proportion.

$$\frac{\text{players}}{\text{fans}} = \frac{1}{16}$$

$$\frac{12}{x} = \frac{1}{16}$$

$$12(16) = 1x$$

$$192 = x$$

Either method has the same result. 192 fans in the stands, cheering for 12 hockey players.

**Lesson C: Activity 2: Self Check**

1. Answers will vary. If you are having trouble with your search, try food items, such as the price of a litre of milk or a kilogram of bananas.
2. Unless you know how much an item would cost in one common currency, such as the Canadian dollar, it is impossible to decide which price is the lowest or which price is the highest.

**Lesson C: Activity 3: Try This**

1. Answers will vary, based on the date that the information is looked up.
2. The prices in Canadian dollars will change, because exchange rates change over time.
3. Answers will vary.
4. Answers will vary.

**Lesson C: Activity 4: Self-Check**

1. a. The peso is the currency used in Mexico. From the table use the following information.

	Currency Unit	Units per 1.00 CAD	Number of CAD per Unit
MXN	Mexico Pesos	12.218 467 4816	0.081 843 3246

What this means, is that one Canadian dollar buys you approximately 12.22 pesos.

For this problem, we are trying to convert from the new currency to Canadian dollars. So for this problem, you would use the last column. The last column tells you that:

One Mexican Peso costs approximately \$0.08 Canadian.

Janice can estimate the cost of the silver bracelet, by using the approximation.

$$1 \text{ MXN} \approx 0.08 \text{ CAD}$$

$$2 \text{ MXN} \approx 0.08 \text{ CAD} \times 2$$

$$3 \text{ MXN} \approx 0.08 \text{ CAD} \times 3$$

$$\text{So, } 800 \text{ MXN} \approx 0.08 \text{ CAD} \times 800 = 64 \text{ CAD.}$$

- b. To convert the 800 Mexican pesos to Canadian dollars, use the value given in the last column of the table. Use, 1 MXN = 0.0818433246 CAD.

$$\begin{aligned} 800 \text{ MXN} &= 0.0818433246 \text{ CAD} \times 800 \\ &= 65.47465968 \text{ CAD} \\ &\approx 65.47 \text{ CAD} \end{aligned}$$

2. To convert the 65 USD to Canadian dollars, use the value given in the last column of the table.

	Currency Unit	Units per 1.00 CAD	Number of CAD per Unit
USD	United States Dollars	0.9419021079	1.0616814546

Use, 1 USD = 1.0616814546 CAD

$$\begin{aligned} 65 \text{ USD} &= 1.0616814546 \text{ CAD} \times 65 \\ &= 69.00929455 \text{ CAD} \\ &\approx 69.01 \text{ CAD} \end{aligned}$$

3. To convert the \$12450 Canadian to US dollars, use the value given in the “Units per 1.00 CAD” column.

	Currency Unit	Units per 1.00 CAD	Number of CAD per Unit
USD	United States Dollars	0.9419021079	1.0616814546

This column tells you that 1 CAD = 0.9419021079 USD.

$$\begin{aligned} 1 \text{ CAD} &= 0.9419021079 \text{ USD} \\ 2 \text{ CAD} &= 0.9419021079 \text{ USD} \times 2 \\ 3 \text{ CAD} &= 0.9419021079 \text{ USD} \times 2 \end{aligned}$$

So,

$$\begin{aligned} 12450 \text{ CAD} &= 0.9419021079 \text{ USD} \times 12450 \\ &= 11726.68124 \text{ USD} \\ &\approx 11726.68 \text{ USD} \end{aligned}$$

\$12450 Canadian is worth \$11726.68 US.

4. There are 10 decimal places in the tables to determine what the conversion would be for a large amount of money.

**Lesson C: Activity 5: Self-Check**

1. Set up a proportion.

$$\frac{\text{Canadian dollar}}{\text{Nuevos Soles}} = \frac{1 \text{ CAD}}{2.5189 \text{ PEN}}$$

In this example, you are told that Victor spent 450 Nuevo Soles, and you are asked to find what this would be in Canadian dollars. Replace “Nuevo Soles” with the 450 and put “ $x$ ” in for “Canadian dollar”.

$$\frac{x}{450} = \frac{1}{2.5189}$$

$$x = \frac{(450)1}{2.5189}$$

$$x = 178.6494105\dots$$

$$x = 178.65$$

On March 20, 2009, Victor spent 178.65 CAD.

2. Set up a proportion.

$$\frac{\text{Canadian dollar}}{\text{Australian dollar}} = \frac{1 \text{ CAD}}{1.0632 \text{ AUD}}$$

In this example, you are told that the Cardinal family was charged 150.00 AUD, and you are asked to find what this would be in Canadian dollars. Replace “Australian dollars” with the 150 and put “ $x$ ” in for “Canadian dollar”.

$$\frac{x}{150} = \frac{1}{1.0632}$$

$$x = \frac{(150)1}{1.0632}$$

$$x = 141.0835214\dots$$

$$x = 141.08$$

The cost of the room was 141.08 CAD.

### Lesson C: Activity 6: Self-Check

1. The table tells you that the bank will buy 1 Euro from you for \$1.412 Canadian.

$$1 \text{ EUR} = 1.412 \text{ CAD}$$

$$350.12 \text{ EUR} = 1.412 \times 350.12 \text{ CAD}$$

$$350.12 \text{ EUR} = 494.36944 \text{ CAD}$$

$$350.12 \text{ EUR} \approx 494.37 \text{ CAD}$$

The bank would give her 494.37 Canadian dollars.

2. The table tells you that the bank will sell you 1 Swedish kronas for \$0.1532 Canadian.

Set up a proportion.

$$\frac{\text{Swedish kronas}}{\text{Canadian dollar}} = \frac{1 \text{ SEK}}{0.1532 \text{ CAD}}$$

$$\frac{x}{500} = \frac{1}{0.1532}$$

$$x = \frac{(500)1}{0.1532}$$

$$x = 3263.707572$$

$$x \approx 3263.71$$

Wilma receives 3263.71 SEK.

3. The table tells you that the bank will buy 1 Scottish pound from you for \$1.6285 Canadian.

$$1 \text{ GBP} = 1.6285 \text{ CAD}$$

$$2 \text{ GBP} = 1.6285 \text{ CAD} \times 2$$

$$\text{So, } 50 \text{ GBP} = 1.6285 \text{ CAD} \times 50 = 81.425 \text{ CAD} \approx 81.43 \text{ CAD}$$

Quincy receives 81.43 CAD for his cheque.



**Lesson C: Activity 7: Mastering Concepts**

Set up a proportion.

$$\frac{\text{Canadian dollar}}{\text{Euro}} = \frac{1 \text{ CAD}}{0.6678 \text{ EUR}}$$

$$\frac{x}{1} = \frac{1}{0.6678}$$

$$x = \frac{(1)1}{0.6678}$$

$$x = 1.497454432..$$

One euro is worth approximately 1.50 CAD. Keep the exact answer from the proportion in your calculator and use it in the following proportion.

$$\frac{\text{Canadian dollar}}{\text{Australian dollar}} = \frac{1 \text{ CAD}}{1.0692 \text{ AUD}}$$

$$\frac{1.497454432...}{x} = \frac{1 \text{ CAD}}{1.0692 \text{ AUD}}$$

$$\frac{(1.497454432...)1.0692}{1} = x$$

$$x = 1.60107816..$$

$$x \approx 1.60$$

One Euro is equal to 1.60 AUD.



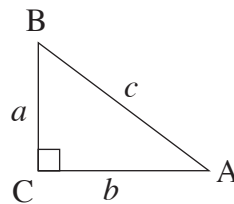
### TABLE OF CONVERSIONS

1 inch	≈	2.54 centimetres
1 foot	≈	30.5 centimetres
1 foot	≈	0.305 metres
1 foot	=	12 inches
1 yard	=	3 feet
1 yard	≈	0.915 metres
1 mile	=	1760 yards
1 mile	≈	1.6 kilometres
1 kilogram	≈	2.2 pounds
1 litre	≈	1.06 US quarts
1 litre	≈	0.26 US gallons
1 gallon	≈	4 quarts
1 British gallon	≈	$\frac{6}{5}$ US gallon

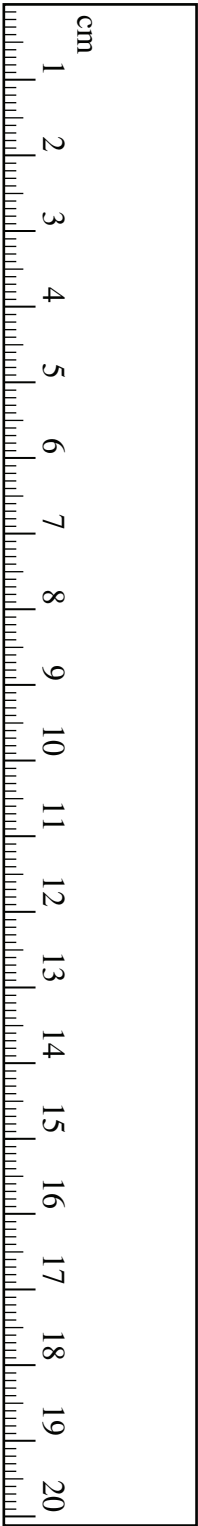
### FORMULAE

Temperature
$C = \frac{5}{9}(F - 32)$

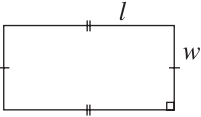
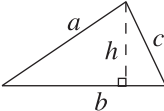
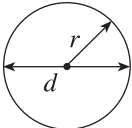
Trigonometry
<p>(Put your calculator in Degree Mode)</p> <ul style="list-style-type: none"> <li>Right triangles</li> </ul> <p><b><i>Pythagorean Theorem</i></b></p> $a^2 + b^2 = c^2$ $\sin A = \frac{\text{opposite}}{\text{hypotenuse}}$ $\cos A = \frac{\text{adjacent}}{\text{hypotenuse}}$ $\tan A = \frac{\text{opposite}}{\text{adjacent}}$



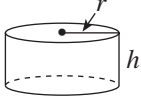
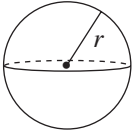
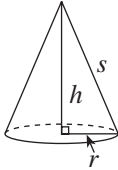
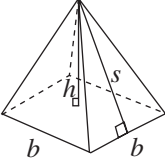
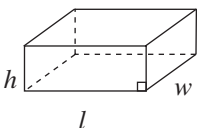
GEOMETRIC FORMULAE

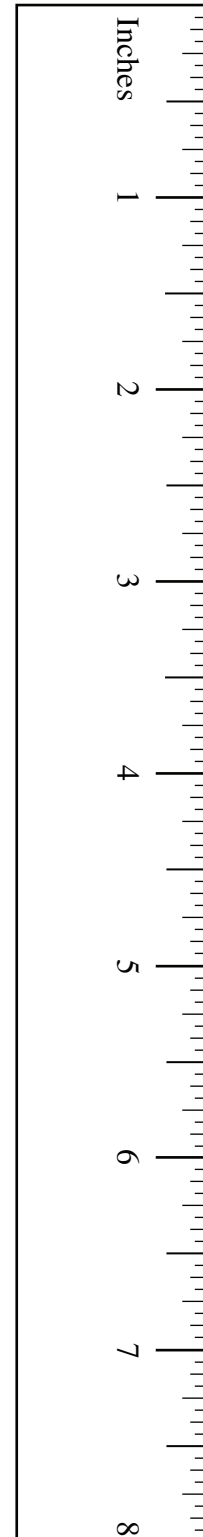


Key Legend	
$l$ = length $w$ = width $b$ = base $h$ = height $s$ = slant height $r$ = radius $d$ = diameter	$P$ = perimeter $C$ = circumference $A$ = area $SA$ = surface area $V$ = volume

Geometric Figure	Perimeter	Area
Rectangle 	$P = 2l + 2w$ or $P = 2(l + w)$	$A = lw$
Triangle 	$P = a + b + c$	$A = \frac{bh}{2}$
Circle 	$C = \pi d$ or $C = 2\pi r$	$A = \pi r^2$

**Note:** Use the value of  $\pi$  programmed in your calculator rather than the approximation of 3.14.

Geometric Figure	Surface Area
<p>Cylinder</p> 	$A_{top} = \pi r^2$ $A_{base} = \pi r^2$ $A_{side} = 2\pi rh$ $SA = 2\pi r^2 + 2\pi rh$
<p>Sphere</p> 	$SA = 4\pi r^2$ <p><b>or</b></p> $SA = \pi d^2$
<p>Cone</p> 	$A_{side} = \pi rs$ $A_{base} = \pi r^2$ $SA = \pi r^2 + \pi rs$
<p>Square-Based Pyramid</p> 	$A_{triangle} = \frac{1}{2}bs \text{ (for each triangle)}$ $A_{base} = b^2$ $SA = 2bs + b^2$
<p>Rectangular Prism</p> 	$SA = wh + wh + lw + lw + lh + lh$ <p><b>or</b></p> $SA = 2(wh + lw + lh)$
<p>General Right Prism</p>	$SA = \text{the sum of the areas of all the faces}$
<p>General Pyramid</p>	$SA = \text{the sum of the areas of all the faces}$



**Note:** Use the value of  $\pi$  programmed in your calculator rather than the approximation of 3.14.

**Canada Pension Plan Contributions  
Weekly (52 pay periods a year)**
**Cotisations au Régime de pensions du Canada  
Hebdomadaire (52 périodes de paie par année)**

Pay Rémunération			CPP RPC	Pay Rémunération			CPP RPC	Pay Rémunération			CPP RPC	Pay Rémunération			CPP RPC
From - De	To - À			From - De	To - À			From - De	To - À			From - De	To - À		
358.11	-	358.31	14.40	372.66	-	372.85	15.12	387.20	-	387.40	15.84	401.75	-	401.94	16.56
358.32	-	358.51	14.41	372.86	-	373.05	15.13	387.41	-	387.60	15.85	401.95	-	402.14	16.57
358.52	-	358.71	14.42	373.06	-	373.25	15.14	387.61	-	387.80	15.86	402.15	-	402.35	16.58
358.72	-	358.91	14.43	373.26	-	373.46	15.15	387.81	-	388.00	15.87	402.36	-	402.55	16.59
358.92	-	359.11	14.44	373.47	-	373.66	15.16	388.01	-	388.20	15.88	402.56	-	402.75	16.60
359.12	-	359.32	14.45	373.67	-	373.86	15.17	388.21	-	388.41	15.89	402.76	-	402.95	16.61
359.33	-	359.52	14.46	373.87	-	374.06	15.18	388.42	-	388.61	15.90	402.96	-	403.15	16.62
359.53	-	359.72	14.47	374.07	-	374.26	15.19	388.62	-	388.81	15.91	403.16	-	403.36	16.63
359.73	-	359.92	14.48	374.27	-	374.47	15.20	388.82	-	389.01	15.92	403.37	-	403.56	16.64
359.93	-	360.12	14.49	374.48	-	374.67	15.21	389.02	-	389.21	15.93	403.57	-	403.76	16.65
360.13	-	360.33	14.50	374.68	-	374.87	15.22	389.22	-	389.42	15.94	403.77	-	403.96	16.66
360.34	-	360.53	14.51	374.88	-	375.07	15.23	389.43	-	389.62	15.95	403.97	-	404.16	16.67
360.54	-	360.73	14.52	375.08	-	375.27	15.24	389.63	-	389.82	15.96	404.17	-	404.37	16.68
360.74	-	360.93	14.53	375.28	-	375.48	15.25	389.83	-	390.02	15.97	404.38	-	404.57	16.69
360.94	-	361.13	14.54	375.49	-	375.68	15.26	390.03	-	390.22	15.98	404.58	-	404.77	16.70
361.14	-	361.34	14.55	375.69	-	375.88	15.27	390.23	-	390.43	15.99	404.78	-	404.97	16.71
361.35	-	361.54	14.56	375.89	-	376.08	15.28	390.44	-	390.63	16.00	404.98	-	405.17	16.72
361.55	-	361.74	14.57	376.09	-	376.28	15.29	390.64	-	390.83	16.01	405.18	-	405.38	16.73
361.75	-	361.94	14.58	376.29	-	376.49	15.30	390.84	-	391.03	16.02	405.39	-	405.58	16.74
361.95	-	362.14	14.59	376.50	-	376.69	15.31	391.04	-	391.23	16.03	405.59	-	405.78	16.75
362.15	-	362.35	14.60	376.70	-	376.89	15.32	391.24	-	391.44	16.04	405.79	-	405.98	16.76
362.36	-	362.55	14.61	376.90	-	377.09	15.33	391.45	-	391.64	16.05	405.99	-	406.18	16.77
362.56	-	362.75	14.62	377.10	-	377.29	15.34	391.65	-	391.84	16.06	406.19	-	406.39	16.78
362.76	-	362.95	14.63	377.30	-	377.50	15.35	391.85	-	392.04	16.07	406.40	-	406.59	16.79
362.96	-	363.15	14.64	377.51	-	377.70	15.36	392.05	-	392.24	16.08	406.60	-	406.79	16.80
363.16	-	363.36	14.65	377.71	-	377.90	15.37	392.25	-	392.45	16.09	406.80	-	406.99	16.81
363.37	-	363.56	14.66	377.91	-	378.10	15.38	392.46	-	392.65	16.10	407.00	-	407.19	16.82
363.57	-	363.76	14.67	378.11	-	378.31	15.39	392.66	-	392.85	16.11	407.20	-	407.40	16.83
363.77	-	363.96	14.68	378.32	-	378.51	15.40	392.86	-	393.05	16.12	407.41	-	407.60	16.84
363.97	-	364.16	14.69	378.52	-	378.71	15.41	393.06	-	393.25	16.13	407.61	-	407.80	16.85
364.17	-	364.37	14.70	378.72	-	378.91	15.42	393.26	-	393.46	16.14	407.81	-	408.00	16.86
364.38	-	364.57	14.71	378.92	-	379.11	15.43	393.47	-	393.66	16.15	408.01	-	408.20	16.87
364.58	-	364.77	14.72	379.12	-	379.32	15.44	393.67	-	393.86	16.16	408.21	-	408.41	16.88
364.78	-	364.97	14.73	379.33	-	379.52	15.45	393.87	-	394.06	16.17	408.42	-	408.61	16.89
364.98	-	365.17	14.74	379.53	-	379.72	15.46	394.07	-	394.26	16.18	408.62	-	408.81	16.90
365.18	-	365.38	14.75	379.73	-	379.92	15.47	394.27	-	394.47	16.19	408.82	-	409.01	16.91
365.39	-	365.58	14.76	379.93	-	380.12	15.48	394.48	-	394.67	16.20	409.02	-	409.21	16.92
365.59	-	365.78	14.77	380.13	-	380.33	15.49	394.68	-	394.87	16.21	409.22	-	409.42	16.93
365.79	-	365.98	14.78	380.34	-	380.53	15.50	394.88	-	395.07	16.22	409.43	-	409.62	16.94
365.99	-	366.18	14.79	380.54	-	380.73	15.51	395.08	-	395.27	16.23	409.63	-	409.82	16.95
366.19	-	366.39	14.80	380.74	-	380.93	15.52	395.28	-	395.48	16.24	409.83	-	410.02	16.96
366.40	-	366.59	14.81	380.94	-	381.13	15.53	395.49	-	395.68	16.25	410.03	-	410.22	16.97
366.60	-	366.79	14.82	381.14	-	381.34	15.54	395.69	-	395.88	16.26	410.23	-	410.43	16.98
366.80	-	366.99	14.83	381.35	-	381.54	15.55	395.89	-	396.08	16.27	410.44	-	410.63	16.99
367.00	-	367.19	14.84	381.55	-	381.74	15.56	396.09	-	396.28	16.28	410.64	-	410.83	17.00
367.20	-	367.40	14.85	381.75	-	381.94	15.57	396.29	-	396.49	16.29	410.84	-	411.03	17.01
367.41	-	367.60	14.86	381.95	-	382.14	15.58	396.50	-	396.69	16.30	411.04	-	411.23	17.02
367.61	-	367.80	14.87	382.15	-	382.35	15.59	396.70	-	396.89	16.31	411.24	-	411.44	17.03
367.81	-	368.00	14.88	382.36	-	382.55	15.60	396.90	-	397.09	16.32	411.45	-	411.64	17.04
368.01	-	368.20	14.89	382.56	-	382.75	15.61	397.10	-	397.29	16.33	411.65	-	411.84	17.05
368.21	-	368.41	14.90	382.76	-	382.95	15.62	397.30	-	397.50	16.34	411.85	-	412.04	17.06
368.42	-	368.61	14.91	382.96	-	383.15	15.63	397.51	-	397.70	16.35	412.05	-	412.24	17.07
368.62	-	368.81	14.92	383.16	-	383.36	15.64	397.71	-	397.90	16.36	412.25	-	412.45	17.08
368.82	-	369.01	14.93	383.37	-	383.56	15.65	397.91	-	398.10	16.37	412.46	-	412.65	17.09
369.02	-	369.21	14.94	383.57	-	383.76	15.66	398.11	-	398.31	16.38	412.66	-	412.85	17.10
369.22	-	369.42	14.95	383.77	-	383.96	15.67	398.32	-	398.51	16.39	412.86	-	413.05	17.11
369.43	-	369.62	14.96	383.97	-	384.16	15.68	398.52	-	398.71	16.40	413.06	-	413.25	17.12
369.63	-	369.82	14.97	384.17	-	384.37	15.69	398.72	-	398.91	16.41	413.26	-	413.46	17.13
369.83	-	370.02	14.98	384.38	-	384.57	15.70	398.92	-	399.11	16.42	413.47	-	413.66	17.14
370.03	-	370.22	14.99	384.58	-	384.77	15.71	399.12	-	399.32	16.43	413.67	-	413.86	17.15
370.23	-	370.43	15.00	384.78	-	384.97	15.72	399.33	-	399.52	16.44	413.87	-	414.06	17.16
370.44	-	370.63	15.01	384.98	-	385.17	15.73	399.53	-	399.72	16.45	414.07	-	414.26	17.17
370.64	-	370.83	15.02	385.18	-	385.38	15.74	399.73	-	399.92	16.46	414.27	-	414.47	17.18
370.84	-	371.03	15.03	385.39	-	385.58	15.75	399.93	-	400.12	16.47	414.48	-	414.67	17.19
371.04	-	371.23	15.04	385.59	-	385.78	15.76	400.13	-	400.33	16.48	414.68	-	414.87	17.20
371.24	-	371.44	15.05	385.79	-	385.98	15.77	400.34	-	400.53	16.49	414.88	-	415.07	17.21
371.45	-	371.64	15.06	385.99	-	386.18	15.78	400.54	-	400.73	16.50	415.08	-	415.27	17.22
371.65	-	371.84	15.07	386.19	-	386.39	15.79	400.74	-	400.93	16.51	415.28	-	415.48	17.23
371.85	-	372.04	15.08	386.40	-	386.59	15.80	400.94	-	401.13	16.52	415.49	-	415.68	17.24
372.05	-	372.24	15.09	386.60	-	386.79	15.81	401.14	-	401.34	16.53	415.69	-	415.88	17.25
372.25	-	372.45	15.10	386.80	-	386.99	15.82	401.35	-	401.54	16.54	415.89	-	416.08	17.26
372.46	-	372.65	15.11	387.00	-	387.19	15.83	401.55	-	401.74	16.55	416.09	-	416.28	17.27

Employee's maximum CPP contribution for the year 2009 is \$2,118.60

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La cotisation maximale de l'employé au RPC pour l'année 2009 est de 2 118,60 \$

# Employment Insurance Premiums

# Cotisations à l'assurance-emploi

Insurable Earnings Rémunération assurable		EI premium Cotisation d'AE	Insurable Earnings Rémunération assurable		EI premium Cotisation d'AE	Insurable Earnings Rémunération assurable		EI premium Cotisation d'AE	Insurable Earnings Rémunération assurable		EI premium Cotisation d'AE
From - De	To - À		From - De	To - À		From - De	To - À		From - De	To - À	
333.24	- 333.81	5.77	374.86	- 375.43	6.49	416.48	- 417.05	7.21	458.10	- 458.67	7.93
333.82	- 334.39	5.78	375.44	- 376.01	6.50	417.06	- 417.63	7.22	458.68	- 459.24	7.94
334.40	- 334.97	5.79	376.02	- 376.58	6.51	417.64	- 418.20	7.23	459.25	- 459.82	7.95
334.98	- 335.54	5.80	376.59	- 377.16	6.52	418.21	- 418.78	7.24	459.83	- 460.40	7.96
335.55	- 336.12	5.81	377.17	- 377.74	6.53	418.79	- 419.36	7.25	460.41	- 460.98	7.97
336.13	- 336.70	5.82	377.75	- 378.32	6.54	419.37	- 419.94	7.26	460.99	- 461.56	7.98
336.71	- 337.28	5.83	378.33	- 378.90	6.55	419.95	- 420.52	7.27	461.57	- 462.13	7.99
337.29	- 337.86	5.84	378.91	- 379.47	6.56	420.53	- 421.09	7.28	462.14	- 462.71	8.00
337.87	- 338.43	5.85	379.48	- 380.05	6.57	421.10	- 421.67	7.29	462.72	- 463.29	8.01
338.44	- 339.01	5.86	380.06	- 380.63	6.58	421.68	- 422.25	7.30	463.30	- 463.87	8.02
339.02	- 339.59	5.87	380.64	- 381.21	6.59	422.26	- 422.83	7.31	463.88	- 464.45	8.03
339.60	- 340.17	5.88	381.22	- 381.79	6.60	422.84	- 423.41	7.32	464.46	- 465.02	8.04
340.18	- 340.75	5.89	381.80	- 382.36	6.61	423.42	- 423.98	7.33	465.03	- 465.60	8.05
340.76	- 341.32	5.90	382.37	- 382.94	6.62	423.99	- 424.56	7.34	465.61	- 466.18	8.06
341.33	- 341.90	5.91	382.95	- 383.52	6.63	424.57	- 425.14	7.35	466.19	- 466.76	8.07
341.91	- 342.48	5.92	383.53	- 384.10	6.64	425.15	- 425.72	7.36	466.77	- 467.34	8.08
342.49	- 343.06	5.93	384.11	- 384.68	6.65	425.73	- 426.30	7.37	467.35	- 467.91	8.09
343.07	- 343.64	5.94	384.69	- 385.26	6.66	426.31	- 426.87	7.38	467.92	- 468.49	8.10
343.65	- 344.21	5.95	385.27	- 385.83	6.67	426.88	- 427.45	7.39	468.50	- 469.07	8.11
344.22	- 344.79	5.96	385.84	- 386.41	6.68	427.46	- 428.03	7.40	469.08	- 469.65	8.12
344.80	- 345.37	5.97	386.42	- 386.99	6.69	428.04	- 428.61	7.41	469.66	- 470.23	8.13
345.38	- 345.95	5.98	387.00	- 387.57	6.70	428.62	- 429.19	7.42	470.24	- 470.80	8.14
345.96	- 346.53	5.99	387.58	- 388.15	6.71	429.20	- 429.76	7.43	470.81	- 471.38	8.15
346.54	- 347.10	6.00	388.16	- 388.72	6.72	429.77	- 430.34	7.44	471.39	- 471.96	8.16
347.11	- 347.68	6.01	388.73	- 389.30	6.73	430.35	- 430.92	7.45	471.97	- 472.54	8.17
347.69	- 348.26	6.02	389.31	- 389.88	6.74	430.93	- 431.50	7.46	472.55	- 473.12	8.18
348.27	- 348.84	6.03	389.89	- 390.46	6.75	431.51	- 432.08	7.47	473.13	- 473.69	8.19
348.85	- 349.42	6.04	390.47	- 391.04	6.76	432.09	- 432.65	7.48	473.70	- 474.27	8.20
349.43	- 349.99	6.05	391.05	- 391.61	6.77	432.66	- 433.23	7.49	474.28	- 474.85	8.21
350.00	- 350.57	6.06	391.62	- 392.19	6.78	433.24	- 433.81	7.50	474.86	- 475.43	8.22
350.58	- 351.15	6.07	392.20	- 392.77	6.79	433.82	- 434.39	7.51	475.44	- 476.01	8.23
351.16	- 351.73	6.08	392.78	- 393.35	6.80	434.40	- 434.97	7.52	476.02	- 476.58	8.24
351.74	- 352.31	6.09	393.36	- 393.93	6.81	434.98	- 435.54	7.53	476.59	- 477.16	8.25
352.32	- 352.89	6.10	393.94	- 394.50	6.82	435.55	- 436.12	7.54	477.17	- 477.74	8.26
352.90	- 353.46	6.11	394.51	- 395.08	6.83	436.13	- 436.70	7.55	477.75	- 478.32	8.27
353.47	- 354.04	6.12	395.09	- 395.66	6.84	436.71	- 437.28	7.56	478.33	- 478.90	8.28
354.05	- 354.62	6.13	395.67	- 396.24	6.85	437.29	- 437.86	7.57	478.91	- 479.47	8.29
354.63	- 355.20	6.14	396.25	- 396.82	6.86	437.87	- 438.43	7.58	479.48	- 480.05	8.30
355.21	- 355.78	6.15	396.83	- 397.39	6.87	438.44	- 439.01	7.59	480.06	- 480.63	8.31
355.79	- 356.35	6.16	397.40	- 397.97	6.88	439.02	- 439.59	7.60	480.64	- 481.21	8.32
356.36	- 356.93	6.17	397.98	- 398.55	6.89	439.60	- 440.17	7.61	481.22	- 481.79	8.33
356.94	- 357.51	6.18	398.56	- 399.13	6.90	440.18	- 440.75	7.62	481.80	- 482.36	8.34
357.52	- 358.09	6.19	399.14	- 399.71	6.91	440.76	- 441.32	7.63	482.37	- 482.94	8.35
358.10	- 358.67	6.20	399.72	- 400.28	6.92	441.33	- 441.90	7.64	482.95	- 483.52	8.36
358.68	- 359.24	6.21	400.29	- 400.86	6.93	441.91	- 442.48	7.65	483.53	- 484.10	8.37
359.25	- 359.82	6.22	400.87	- 401.44	6.94	442.49	- 443.06	7.66	484.11	- 484.68	8.38
359.83	- 360.40	6.23	401.45	- 402.02	6.95	443.07	- 443.64	7.67	484.69	- 485.26	8.39
360.41	- 360.98	6.24	402.03	- 402.60	6.96	443.65	- 444.21	7.68	485.27	- 485.83	8.40
360.99	- 361.56	6.25	402.61	- 403.17	6.97	444.22	- 444.79	7.69	485.84	- 486.41	8.41
361.57	- 362.13	6.26	403.18	- 403.75	6.98	444.80	- 445.37	7.70	486.42	- 486.99	8.42
362.14	- 362.71	6.27	403.76	- 404.33	6.99	445.38	- 445.95	7.71	487.00	- 487.57	8.43
362.72	- 363.29	6.28	404.34	- 404.91	7.00	445.96	- 446.53	7.72	487.58	- 488.15	8.44
363.30	- 363.87	6.29	404.92	- 405.49	7.01	446.54	- 447.10	7.73	488.16	- 488.72	8.45
363.88	- 364.45	6.30	405.50	- 406.06	7.02	447.11	- 447.68	7.74	488.73	- 489.30	8.46
364.46	- 365.02	6.31	406.07	- 406.64	7.03	447.69	- 448.26	7.75	489.31	- 489.88	8.47
365.03	- 365.60	6.32	406.65	- 407.22	7.04	448.27	- 448.84	7.76	489.89	- 490.46	8.48
365.61	- 366.18	6.33	407.23	- 407.80	7.05	448.85	- 449.42	7.77	490.47	- 491.04	8.49
366.19	- 366.76	6.34	407.81	- 408.38	7.06	449.43	- 449.99	7.78	491.05	- 491.61	8.50
366.77	- 367.34	6.35	408.39	- 408.95	7.07	450.00	- 450.57	7.79	491.62	- 492.19	8.51
367.35	- 367.91	6.36	408.96	- 409.53	7.08	450.58	- 451.15	7.80	492.20	- 492.77	8.52
367.92	- 368.49	6.37	409.54	- 410.11	7.09	451.16	- 451.73	7.81	492.78	- 493.35	8.53
368.50	- 369.07	6.38	410.12	- 410.69	7.10	451.74	- 452.31	7.82	493.36	- 493.93	8.54
369.08	- 369.65	6.39	410.70	- 411.27	7.11	452.32	- 452.89	7.83	493.94	- 494.50	8.55
369.66	- 370.23	6.40	411.28	- 411.84	7.12	452.90	- 453.46	7.84	494.51	- 495.08	8.56
370.24	- 370.80	6.41	411.85	- 412.42	7.13	453.47	- 454.04	7.85	495.09	- 495.66	8.57
370.81	- 371.38	6.42	412.43	- 413.00	7.14	454.05	- 454.62	7.86	495.67	- 496.24	8.58
371.39	- 371.96	6.43	413.01	- 413.58	7.15	454.63	- 455.20	7.87	496.25	- 496.82	8.59
371.97	- 372.54	6.44	413.59	- 414.16	7.16	455.21	- 455.78	7.88	496.83	- 497.39	8.60
372.55	- 373.12	6.45	414.17	- 414.73	7.17	455.79	- 456.35	7.89	497.40	- 497.97	8.61
373.13	- 373.69	6.46	414.74	- 415.31	7.18	456.36	- 456.93	7.90	497.98	- 498.55	8.62
373.70	- 374.27	6.47	415.32	- 415.89	7.19	456.94	- 457.51	7.91	498.56	- 499.13	8.63
374.28	- 374.85	6.48	415.90	- 416.47	7.20	457.52	- 458.09	7.92	499.14	- 499.71	8.64

Yearly maximum insurable earnings are \$42,300  
 Yearly maximum employee premiums are \$731.79  
 The premium rate for 2009 is 1.73 %

Le maximum annuel de la rémunération assurable est de 42 300 \$  
 La cotisation maximale annuelle de l'employé est de 731,79 \$  
 Le taux de cotisation pour 2009 est de 1,73 %

**Federal tax deductions**  
**Effective January 1, 2009**  
**Weekly (52 pay periods a year)**  
**Also look up the tax deductions**  
**in the provincial table**

**Retenues d'impôt fédéral**  
**En vigueur le 1<sup>er</sup> janvier 2009**  
**Hebdomadaire (52 périodes de paie par année)**  
**Cherchez aussi les retenues d'impôt**  
**dans la table provinciale**

Pay Rémunération		Federal claim codes/Codes de demande fédéraux										
		0	1	2	3	4	5	6	7	8	9	10
From	Less than	Deduct from each pay										
De	Moins de	Retenez sur chaque paie										
335	- 339	44.65	15.55	12.70	7.00	1.30						
339	- 343	45.20	16.10	13.25	7.55	1.85						
343	- 347	45.80	16.65	13.80	8.10	2.45						
347	- 351	46.35	17.20	14.35	8.65	3.00						
351	- 355	46.90	17.75	14.90	9.25	3.55						
355	- 359	47.45	18.35	15.50	9.80	4.10						
359	- 363	48.00	18.90	16.05	10.35	4.65						
363	- 367	48.60	19.45	16.60	10.90	5.25						
367	- 371	49.15	20.00	17.15	11.45	5.80	.10					
371	- 375	49.70	20.55	17.70	12.05	6.35	.65					
375	- 379	50.25	21.15	18.30	12.60	6.90	1.20					
379	- 383	50.80	21.70	18.85	13.15	7.45	1.80					
383	- 387	51.40	22.25	19.40	13.70	8.00	2.35					
387	- 391	51.95	22.80	19.95	14.25	8.60	2.90					
391	- 395	52.50	23.35	20.50	14.85	9.15	3.45					
395	- 399	53.05	23.95	21.10	15.40	9.70	4.00					
399	- 403	53.60	24.50	21.65	15.95	10.25	4.60					
403	- 407	54.20	25.05	22.20	16.50	10.80	5.15					
407	- 411	54.75	25.60	22.75	17.05	11.40	5.70					
411	- 415	55.30	26.15	23.30	17.65	11.95	6.25	.55				
415	- 419	55.85	26.75	23.90	18.20	12.50	6.80	1.15				
419	- 423	56.40	27.30	24.45	18.75	13.05	7.40	1.70				
423	- 427	57.00	27.85	25.00	19.30	13.60	7.95	2.25				
427	- 431	57.55	28.40	25.55	19.85	14.20	8.50	2.80				
431	- 435	58.10	28.95	26.10	20.45	14.75	9.05	3.35				
435	- 439	58.65	29.50	26.70	21.00	15.30	9.60	3.95				
439	- 443	59.20	30.10	27.25	21.55	15.85	10.20	4.50				
443	- 447	59.80	30.65	27.80	22.10	16.40	10.75	5.05				
447	- 451	60.35	31.20	28.35	22.65	17.00	11.30	5.60				
451	- 455	60.90	31.75	28.90	23.25	17.55	11.85	6.15	.50			
455	- 459	61.45	32.30	29.50	23.80	18.10	12.40	6.75	1.05			
459	- 463	62.00	32.90	30.05	24.35	18.65	12.95	7.30	1.60			
463	- 467	62.60	33.45	30.60	24.90	19.20	13.55	7.85	2.15			
467	- 471	63.15	34.00	31.15	25.45	19.80	14.10	8.40	2.70			
471	- 475	63.70	34.55	31.70	26.05	20.35	14.65	8.95	3.30			
475	- 479	64.25	35.10	32.30	26.60	20.90	15.20	9.55	3.85			
479	- 483	64.80	35.70	32.85	27.15	21.45	15.75	10.10	4.40			
483	- 487	65.40	36.25	33.40	27.70	22.00	16.35	10.65	4.95			
487	- 491	65.95	36.80	33.95	28.25	22.60	16.90	11.20	5.50			
491	- 495	66.50	37.35	34.50	28.85	23.15	17.45	11.75	6.10	.40		
495	- 499	67.05	37.90	35.10	29.40	23.70	18.00	12.35	6.65	.95		
499	- 503	67.60	38.50	35.65	29.95	24.25	18.55	12.90	7.20	1.50		
503	- 507	68.20	39.05	36.20	30.50	24.80	19.15	13.45	7.75	2.05		
507	- 511	68.75	39.60	36.75	31.05	25.40	19.70	14.00	8.30	2.65		
511	- 515	69.30	40.15	37.30	31.65	25.95	20.25	14.55	8.90	3.20		
515	- 519	69.85	40.70	37.90	32.20	26.50	20.80	15.15	9.45	3.75		
519	- 523	70.40	41.30	38.45	32.75	27.05	21.35	15.70	10.00	4.30		
523	- 527	71.00	41.85	39.00	33.30	27.60	21.95	16.25	10.55	4.85		
527	- 531	71.55	42.40	39.55	33.85	28.20	22.50	16.80	11.10	5.45		
531	- 535	72.10	42.95	40.10	34.45	28.75	23.05	17.35	11.70	6.00	.30	
535	- 539	72.65	43.50	40.70	35.00	29.30	23.60	17.90	12.25	6.55	.85	
539	- 543	73.20	44.10	41.25	35.55	29.85	24.15	18.50	12.80	7.10	1.40	
543	- 547	73.80	44.65	41.80	36.10	30.40	24.75	19.05	13.35	7.65	2.00	
547	- 551	74.35	45.20	42.35	36.65	31.00	25.30	19.60	13.90	8.25	2.55	
551	- 555	74.90	45.75	42.90	37.25	31.55	25.85	20.15	14.50	8.80	3.10	

This table is available on TOD

D-2

Vous pouvez obtenir cette table sur TSD



**British Columbia provincial tax deductions**  
**Effective January 1, 2009**  
**Weekly (52 pay periods a year)**  
**Also look up the tax deductions**  
**in the federal table**

**Retenues d'impôt provincial de la Colombie-Britannique**  
**En vigueur le 1<sup>er</sup> janvier 2009**  
**Hebdomadaire (52 périodes de paie par année)**  
**Cherchez aussi les retenues d'impôt**  
**dans la table fédérale**

Pay		Provincial claim codes/Codes de demande provinciaux										
Rémunération		0	1	2	3	4	5	6	7	8	9	10
From	Less than	Deduct from each pay										
De	Moins de	Retenez sur chaque paie										
343		*	.00							*You normally use claim code "0" only for non-resident employees. However, if you have non-resident employees who earn less than the minimum amount shown in the "Pay" column, you may not be able to use these tables. Instead, refer to the "Step-by-step calculation of tax deductions" in Section "A" of this publication.		
343 - 345	9.30	.20										
345 - 347	9.45	.35										
347 - 349	9.60	.50										
349 - 351	9.80	.65										
351 - 353	9.95	.80								*Le code de demande «0» est normalement utilisé seulement pour les non-résidents. Cependant, si la rémunération de votre employé non résidant est inférieure au montant minimum indiqué dans la colonne «Rémunération», vous ne pourrez peut-être pas utiliser ces tables. Reportez-vous alors au «Calcul des retenues d'impôt, étape par étape» dans la section «A» de cette publication.		
353 - 355	10.10	.95										
355 - 357	10.25	1.15	.10									
357 - 359	10.40	1.30	.25									
359 - 361	10.55	1.45	.40									
361 - 363	10.75	1.60	.60									
363 - 365	10.90	1.75	.75									
365 - 367	11.05	1.90	.90									
367 - 369	11.20	2.10	1.05									
369 - 371	11.35	2.25	1.20									
371 - 373	11.50	2.40	1.35									
373 - 375	11.70	2.55	1.55									
375 - 377	11.85	2.70	1.70									
377 - 379	12.00	2.90	1.85									
379 - 381	12.15	3.05	2.00									
381 - 383	12.30	3.20	2.15	.10								
383 - 385	12.45	3.35	2.30	.25								
385 - 387	12.65	3.50	2.50	.45								
387 - 389	12.80	3.65	2.65	.60								
389 - 391	12.95	3.85	2.80	.75								
391 - 393	13.10	4.00	2.95	.90								
393 - 395	13.25	4.15	3.10	1.05								
395 - 397	13.40	4.30	3.30	1.20								
397 - 399	13.60	4.45	3.45	1.40								
399 - 401	13.75	4.60	3.60	1.55								
401 - 403	13.90	4.80	3.75	1.70								
403 - 405	14.05	4.95	3.90	1.85								
405 - 407	14.20	5.10	4.05	2.00								
407 - 409	14.35	5.25	4.25	2.15	.10							
409 - 411	14.55	5.40	4.40	2.35	.30							
411 - 413	14.70	5.55	4.55	2.50	.45							
413 - 415	14.85	5.75	4.70	2.65	.60							
415 - 417	15.00	5.90	4.85	2.80	.75							
417 - 419	15.15	6.05	5.00	2.95	.90							
419 - 421	15.30	6.20	5.20	3.10	1.05							
421 - 423	15.50	6.35	5.35	3.30	1.25							
423 - 425	15.65	6.50	5.50	3.45	1.40							
425 - 427	15.80	6.70	5.65	3.60	1.55							
427 - 429	15.95	6.85	5.80	3.75	1.70							
429 - 431	16.10	7.00	5.95	3.90	1.85							
431 - 433	16.25	7.15	6.15	4.10	2.00							
433 - 435	16.45	7.30	6.30	4.25	2.20	.15						
435 - 437	16.60	7.45	6.45	4.40	2.35	.30						
437 - 439	16.75	7.65	6.60	4.55	2.50	.45						
439 - 441	16.90	7.80	6.75	4.70	2.65	.60						
441 - 443	17.05	7.95	6.90	4.85	2.80	.75						
443 - 445	17.20	8.10	7.10	5.05	2.95	.90						
445 - 447	17.40	8.25	7.25	5.20	3.15	1.10						
447 - 449	17.55	8.40	7.40	5.35	3.30	1.25						
449 - 451	17.70	8.60	7.55	5.50	3.45	1.40						

\*You normally use claim code "0" only for non-resident employees. However, if you have non-resident employees who earn less than the minimum amount shown in the "Pay" column, you may not be able to use these tables. Instead, refer to the "Step-by-step calculation of tax deductions" in Section "A" of this publication.

\*Le code de demande «0» est normalement utilisé seulement pour les non-résidents. Cependant, si la rémunération de votre employé non résidant est inférieure au montant minimum indiqué dans la colonne «Rémunération», vous ne pourrez peut-être pas utiliser ces tables. Reportez-vous alors au «Calcul des retenues d'impôt, étape par étape» dans la section «A» de cette publication.

This table is available on TOD

E-1

Vous pouvez obtenir cette table sur TSD



# Glossary

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**acre (ac)**

a unit of area in the imperial system

An acre is 22 yd wide by 220 yd long or 4840 yd<sup>2</sup>.

**area**

a measurement of how many square units into which a surface may be divided

For example, if your living room carpet can be divided into 10 square metres, its area is 10 m<sup>2</sup>.

**capacity**

a measurement of how much a container can hold

Commonly, capacity refers to the amount of liquid that can be poured into a container, but it can also be used to refer to an amount of solid that can be placed into a container.

**Celsius**

a temperature scale commonly used in every major country throughout the world, except the United States

**compatible numbers**

numbers that are easy to use in a mental computation, especially division

**cubic foot (ft<sup>3</sup>)**

a unit of volume in the imperial system

A cubic foot is the volume of a cube having an edge length of 1 ft.

**cubic inch (in<sup>3</sup>)**

a unit of volume in the imperial system

A cubic inch is the volume of a cube having an edge length of 1 in.

**cubic yard (yd<sup>3</sup>)**

a unit of volume in the imperial system

A cubic yard is the volume of a cube having an edge length of 1 yd.

**foot**

a unit of length in the imperial system equal to 12 in

A measure of one foot can be expressed as 1 ft or 1'.

**gallon (gal)**

a measure of capacity in the imperial system

A gallon is 4 qt in size.

**hectare**

the area of a square 100 m on a side. The symbol for one hectare is 1 ha.

**inch**

a unit of length in the imperial system

A measure of 1 inch can be written as 1 in or 1".

**kilogram (kg)**

the base unit of mass in the metric system

A kilogram is equal to the mass of a certain cylinder of platinum-iridium alloy kept at the International Bureau of Weights and Measures in France.

**litre (L)**

the capacity of a container having a volume of 1000 cm<sup>3</sup>

Since 1 L = 1000 mL, 1 mL = 1 cm<sup>3</sup>.

**long ton**

a unit of weight (mass) in the imperial system

1 long ton = 2240 lb

**mass**

a measure of the quantity of matter in an object

**metre**

the base unit of length (or linear measure) in SI

**mile (mi)**

a unit of length in the imperial system

The mile is defined today as exactly 5280 ft.

**ounce (oz)**

a unit of weight (mass) in the imperial system

There are 16 oz in 1lb.

1 lb = 16 oz

**pint (pt)**

a measure of capacity in the imperial system

A pint is roughly equal to 0.5 L.

**pound (lb)**

a unit of weight (mass) in the imperial system

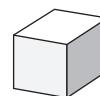
One pound is defined as exactly 0.453 592 37 kg.

**prism**

in geometry, a 3-D object that has two congruent and parallel faces (the top and bottom bases) and lateral faces that are parallelograms

Such a 3-D object is also known as a rectangular box.

The following is a 3-D object known in geometry as a prism.

**proportion**

a statement showing one ratio equal to another

For example,  $\frac{1}{12} = \frac{3}{36}$  is a proportion statement.

**quart(qt)**

a measure of capacity in the imperial system

There are 2 pt in a quart.

A quart is approximately equal to 1 L.

**short ton**

a unit of weight (mass) in the imperial system (also called a ton)

1 short ton = 2000 lb

**square foot (ft<sup>2</sup>)**

a unit of area in the imperial system

A square foot is the area of a square 1ft on a side.

**square inch (in<sup>2</sup>)**

a unit of area in the imperial system

A square inch is the area of a square 1 in on a side.

**square mile(mi<sup>2</sup>)**

a unit of area in the imperial system

A square mile is the area of a square 1 mi on a side.

**square yard (yd<sup>2</sup>)**

a unit of area in the imperial system

A square yard is the area of a square 1yd on a side.

**ton**

a unit of weight (mass) in the imperial system (also called a short ton)

1 ton = 2000 lb

**tonne (t)**

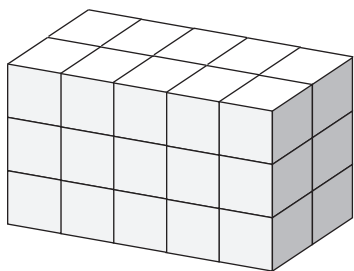
in the metric system, a unit of mass equal to a 1000 kg

1 t = 1000 kg.

**volume**

a measurement of how many cubic units into which a object or space may be divided

For example, if your living room is 5 m long by 3 m wide by 3 m high, its volume is  $5 \text{ m} \times 3 \text{ m} \times 3 \text{ m} = 45 \text{ m}^3$ .



**weight**

a measure of the force of gravity on an object

**yard (yd)**

a unit of length in the imperial system

One yard equals 3 ft or 0.9411 m.