

Chapter 1 Unit Pricing and Currency Exchange

KEY TERMS

- buying rate
- exchange rate
- markup
- promotion
- proportion
- rate
- ratio
- selling rate
- unit price
- unit rate

GOALS

Both in the workplace and in your daily life, you will need to make decisions about what to buy and how to pay the best price for what you need. In this chapter, you will use some familiar mathematical concepts—including fractions, percent, rate, and ratio—in a new context. You will apply these mathematical ideas to

- learn how to determine which purchase is the best buy, considering quality and quantity as well as unit price;
- investigate sales promotions and compare their effects; and
- convert Canadian dollars into a foreign currency and foreign currencies into Canadian dollars.

MATH ON THE JOB

"In 1997, I moved back to the old family homestead, turning the place into an organic, small plot gardening, herb farm and an informal learning centre. We grow food, flowers, garlic, herbs, and wheatgrass," says Pam Trenholm. Pam is a farmer who operates Brighton Botanicals, located near Hartland, New Brunswick. She attended Hartland High School and later took business courses at Carleton County Vocational School in Woodstock, New Brunswick.

Pam's job includes ordering seeds, selling produce, and planting and caring for crops. Pam needs to fertilize a crop with an organic liquid fertilizer that is mixed with water. Five hundred mL of fertilizer is mixed with 60 L of water. If Pam is using 750 mL of fertilizer, how much water does she need to add? How can Pam use proportional reasoning to solve this problem?



Pam (right) and her intern check plants to see if they have received enough nutrients.

Students have used ratios and proportions in previous grades. Activate their prior knowledge by giving students a few minutes to try to solve the question in this scenario themselves. When presenting the solution, you may want to show students that there is more than one method.

**METHOD 1:** Set up a ratio by aligning the same units. Students may have seen this method in science class, where it is called dimensional analysis. Show the students that the same units (mL) should cancel each other out, leaving the desired units (L).

$$\frac{500 \text{ mL}}{750 \text{ mL}} = \frac{60 \text{ L}}{x}$$

To solve for x, multiply both sides of the equation by the common denominator, 300x.

$$750x \left( \frac{500}{750} \right) = \left( \frac{60}{x} \right) 750x$$

$$\frac{375,000x}{750} = \frac{45,000x}{x}$$

Simplify each side of the equation by dividing by the denominator.

$$500x = 45,000$$

Divide each side by the coefficient of the variable, 500.

$$\frac{500x}{500} = \frac{45,000}{500}$$

$$x = 90 \text{ L}$$

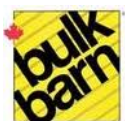
**METHOD 2:** Find the unit amount of L/mL first by dividing the numerator by the denominator, 500.

$$\frac{60 \text{ L}}{500 \text{ mL}} = \frac{0.12 \text{ L}}{1 \text{ mL}}$$

For every mL of fertilizer, 0.12 L of water is added. Multiply to find the amount of water needed for 750 g of liquid fertilizer.

$$0.12 \times 750 = 90$$

The farmer must add 90 L of water to 750 g of fertilizer.



Proportional



Reasoning

Ratio



Rate

Proportion

Can you recall what these are??

**Ratio:** a comparison between two numbers with the **same units**

- can be written 2:5 or 2/5
- fraction is popular for calculations
- fraction form is also called a proportion
- ex: mixing oil 50:1



**Rate:** a comparison between two numbers with **different units**

- ex: km/h; \$/hr; \$/100 g; words/min
- also known as a rate of change

**Proportion:** a fractional statement of equality between two ratios or rates



$$\frac{3}{6} = \frac{1}{2}$$

**EXAMPLE #1:**

Engines requiring a mixture of oil and fuel to provide lubrication are called 2-stroke engines. Lisa lives in McCallum, Newfoundland, and uses her boat for transportation. Her boat motor's tank holds 25 L of fuel. The ratio of gasoline to oil required is 50 parts of gasoline to 1 part of oil. Lisa mixes the fuel and oil in a 30-L jerry can before filling up her boat's tank. How much oil should be added to the gasoline?



- STEPS...**
1. Indicate the variable and set up the ratio.
  2. Use ratio to fill in value.
  3. Create equal proportions.
  4. Solve for the unknown



Jean-Luc, a builder, works in Kentville, Nova Scotia. He has found that he can arrange the work cubicles of his employees best if the ratio between the length and the width of a room is 3:2. If a room is 6 m long, how wide should the room be?



**SOLUTION...**

1. State the variable and Set up ratio.
2. Fill in ratio
3. Use ratio to create proportion.
4. Solve for the unknown.

If halibut steaks cost \$2.49 for 100 g, how much will it cost to buy 250 g of halibut steaks?

**SOLUTION...**



1. State the variable and Set up ratio or rate.
2. Fill in rate
3. Use rate to create proportion.
4. Solve for the unknown.

Recipe #1  
3 cups of concentrate  
7 cups of water

Recipe #2  
2 cups of concentrate  
5 cups of water

You only want to make 8 cups of Recipe #1. How many cups of concentrate and how many cups of water will you need? Explain your solution.

...Hint...How many cups does the recipe make in total??



$$\frac{5 \text{ cups water}}{7 \text{ cups Juice}} = \frac{X \text{ cup water}}{8 \text{ cup Juice}}$$

$$\frac{5}{7} = \frac{X}{8}$$

$$5(8) = 7X$$

$$40 = 7X$$

$$\frac{40}{7} = X$$

$$5.7 = X$$

5.7 cups water

8-5.7  
2.3 cups concentrate.



Sidney Crosby

DISCUSS THE IDEAS  
SIDNEY CROSBY, HOCKEY PLAYER

At the 2010 Olympic Winter Games in Vancouver, British Columbia, Sidney Crosby of Cole Harbour, Nova Scotia, scored the gold medal-winning goal in men's hockey. Team Canada, which had been playing at a furious pace against the United States, won the game with a score of 3 to 2.

In the 2001-2002 season, when Crosby was playing for the Dartmouth Subways, he scored 95 goals and earned 193 points in 74 games. How would you calculate the average number of points he earned per game?

Sidney's average points scored is a rate comparing his points scored to games played. Students could discuss how the number of points scored per game can vary significantly with each game, due to scoring streaks or injuries. Thus, an average rate may not always be the best indicator of an athlete's ability.

The solution is as follows.

$$\frac{193 \text{ points}}{74 \text{ games}} = 2.6 \text{ points/game}$$



**HOMEWORK: P. 21 #1 - 9.6**

1.1 Build Your Skills Detailed Solutions.pdf

**Unit Price**

CUT COSTS



Terry's background as a Red Seal chef helps him provide his customers with appealing, healthy food.

**MATH ON THE JOB**

Terry Robichaud is the department manager of the deli at Pete's Frootique grocery store in Halifax, Nova Scotia. Terry is Acadian. He grew up in Halifax, where he attended St. Patrick's High School.

"Some of my duties and responsibilities are to lead and motivate staff and provide vision and planning for business growth," he says. Terry also controls departmental finances such as wages and sales targets. "I use math to calculate prices for retail sales. From this I ensure our company achieves the appropriate profit margin on each item sold," says Terry.

Terry is considering buying a new type of samosa to sell in the deli. He will buy them frozen from a wholesaler, to bake and sell in the deli. One wholesaler sells a box of 50 samosas for \$28.00. Another

wholesaler sells a box of 75 samosas for \$41.25. What is the unit price at each wholesaler? What is the unit price difference between the two companies? What factors apart from price might Terry want to consider?

**SOLUTION**

Calculate the unit price by dividing the total price from each wholesaler by the number of samosas.

Wholesaler A:  $\$28.00/50 = \$0.56/\text{samosa}$

Wholesaler B:  $\$41.25/75 = \$0.55/\text{samosa}$

Wholesaler B's unit price is \$0.01/samosa less than Wholesaler A's price.

Other factors to consider include the following:

- Has Terry bought from this wholesaler before and has he been happy with their products?
- Is the product in stock when he needs it?
- Does the wholesaler carry other products that he needs so that he can optimize his buying efficiency?

**Unit Price**

The cost of one unit; a rate expressed as a fraction in which the denominator is 1.

\*\*\* allows you to compare prices and determine the 'best buy'

EX: Five MVHS T-shirts cost \$40. The unit price is :

$\frac{\$40.00}{5} = \$8.00$  *T-shirt*



**Unit Rate**

The rate or cost for one item or unit.

EX: Lay's chips can produce 25 000 bags of chips in a regular 8 hour shift. The unit rate is:

$\frac{25\ 000}{8} = 3125 \text{ bags/hour}$

**Exampe #1:**

Shoppers has a sale on Sunday where you can buy six 710 mL of pop for \$1.99. Calculate the unit price of 1 pop.



~~$\frac{\$1.99}{6 \text{ pop}}$~~   
 $\frac{\$1.99}{6 \text{ pop}} = \$0.33/\text{pop}$

$6 \text{ pop} \rightarrow 710 \text{ mL} = 4260 \text{ mL}$   
 $\frac{\$1.99^{+60}}{4.26 \text{ L}} = \$0.47/\text{L}$  4.26 L

$12 \text{ pop} \rightarrow 355 \text{ mL} = 4260 \text{ mL}$   
 $\frac{\$3.00^{+120}}{4.26 \text{ L}} = \$0.70/\text{L}$

$2 \text{ L POP} = 1 \text{ L} -$   
 $\$0.50/\text{L}$

**Example 2:**

Shortcake picks fresh strawberries at a U-pick farm in Derby. If she fills a pint basket (0.5506 litres), it cost her \$1.50. If she fills a 4-litre ice cream pail, it will cost \$10.00.  
Which size of container will give her a better buy?



**COMPARISON SHOPPING...**

- let's go online and check out their site / sales flyer!!!

Super Valu VS Sobeys VS Costco



**HOMEWORK...**

P 21 #1-8  
P. 26: Questions #1-3.

1.2 Build Your Skills Detailed Solutions.pdf

**Warm up!!!**



1. Many big screen TV's have an aspect ratio of 16:9. This means that for every 16 inches of width, the TV will be 9 inches high. Calculate the height of a TV that is 27 inches wide.
2. The cost of a pack of 4 hamburgers is \$4.89, the cost of a pack of 12 buns is \$1.29, and the cost of 24 slices of cheese is \$3.69. What is the cost of 5 cheeseburgers? (1 hamburger, 1 slice of cheese, and 1 bun)



1. Many big screen TV's have an aspect ratio of 16:9. This means that for every 16 inches of width, the TV will be 9 inches high. Calculate the height of a TV that is 27 inches wide.

$$\frac{\text{width}}{\text{height}} = \frac{x}{\text{height}}$$

$$\frac{16}{9} = \frac{27}{x}$$

$$16x = 243$$

$$x = 15.1875$$



The height of the TV would be 15.2 inches.



2. The cost of a pack of 4 hamburgers is \$4.89, the cost of a pack of 12 buns is \$1.29, and the cost of 24 slices of cheese is \$3.69. What is the cost of 5 cheeseburgers? (1 hamburger, 1 slice of cheese, and 1 bun)

Hamburger	Bun	Cheese	
<u>4.89</u>	<u>1.29</u>	<u>3.69</u>	
4	12	24	
1.2225	0.1075	0.15375	
\$1.22 <sub>h</sub>	\$0.11 <sub>/b</sub>	\$0.15 <sub>c</sub>	
			One Burger: \$1.22
			0.11
			<u>0.15</u>
			\$1.48
			Five Burgers:
			\$1.48 × 5 = \$7.40

Five cheeseburgers would cost \$7.40.

**MATH ON THE JOB**

Maurice Meagher is the owner of Case Handyman and Remodeling, a business that performs renovation, remodeling, building, and designing services in Halifax, Nova Scotia. Maurice grew up in Port Hawkesbury, NS, where he went to high school at the Strait Area Education Recreation Center.

Maurice's job includes drawing up yearly and monthly budgets. He also calculates averages of past sales to help him forecast changes in staffing and cash flow. Another important part of Maurice's job is estimating how much it will cost to complete different building, renovation, or remodeling projects.

Maurice is estimating the cost of remodeling the floors of a home. He calculates that the floor space measures 1500 square feet. He determines that the cost of the entire job, including labour and materials such as ceramic tile and grout, will be \$27 000.00. What is the cost per square foot for the remodeling?



Maurice's job involves estimating the cost of building decks and sunrooms.

**SOLUTION**

What is the cost per square foot for the job?

$$\frac{\$27\,000.00}{1500} = \$18.00/\text{sq. ft.}$$

**Setting a Price**



**SUPPLY/DEMAND:**

- demand rises...cost increases.
- demand falls (or over supplied)...cost decreases.

**Markup**

The difference between the amount a dealer sells a product for and the amount he or she paid for it.

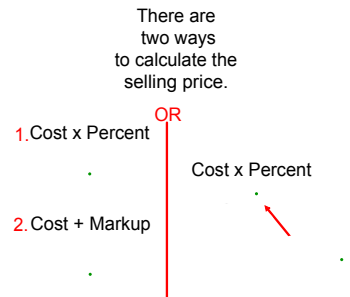
**Percent**

Percent means "out of 100"; a percentage is a ratio in which the denominator is 100.  
The markup is usually a percent.

What's in a price???

- \$39.99 seems less expensive than \$40.
- price / 100 g rather than price / kg.
- weekly payments rather than monthly.

**EX:** The markup of the T-shirts is 25%. If the cost of making a T-shirt is \$8, determine the selling price...



What else affects selling price?



Goods and Services Tax

	GST	PST	HST
NS			15%
NB			13%
NFLD			13%
PEI			14 %



Harmonized Sales Tax

Retail Buying

<http://www.cra-arc.gc.ca/tv/bnss/tpcs/gst-tps/rt-eng.html>

Sales Tax - Provincial (PST) / Goods & Services (GST)

GST is 5 % (effective Jan. 1/2008)

**GST/HST rates**

The GST is a tax that applies on most supplies of goods and services made in Canada. The GST also applies to supplies of real property (for example, land, buildings and interests in such property) and intangible property such as trademarks, rights to use a patent, and digitized products downloaded from the Internet and paid for individually.

The participating provinces (New Brunswick, Newfoundland and Labrador, Nova Scotia, and Ontario) harmonized their provincial sales tax with the GST to implement the HST. Generally, the HST applies to the same base of goods and services as the GST. On April 1, 2013, Prince Edward Island harmonized its provincial sales tax with the GST to implement the HST. Also, as of April 1, 2013, the HST at the rate of 12% (5% federal part and 7% provincial part) **no longer applies** in British Columbia. The HST at the rate of 12% has been replaced by the GST at the rate of 5% and a provincial sales tax.

In Quebec, Revenu Québec administers the GST/HST. If your business is located in Quebec, visit the [Revenu Québec Web site](#).

The GST/HST rates are as follows:

Province	April 1, 2013 and subsequent	July 1, 2010 to March 31, 2013	January 1, 2008, to June 30, 2010	July 1, 2006 to December 31, 2007	April 1, 1997, to June 30, 2006	Jan. 1, 1991 to March 31, 1997
Alberta	5%	5%	5%	6%	7%	7%
British Columbia	5%	12%	5%	6%	7%	7%
Manitoba	5%	5%	5%	6%	7%	7%
New Brunswick	13%	13%	13%	14%	15%	7%
Newfoundland and Labrador	13%	13%	13%	14%	15%	7%
Northwest Territories	5%	5%	5%	6%	7%	7%
Nova Scotia	15% <sup>1</sup>	15% <sup>1</sup>	13%	14%	15%	7%
Nunavut	5%	5%	5%	6%	7%	7%
Ontario	13%	13%	5%	6%	7%	7%
Prince Edward Island	14% <sup>2</sup>	5%	5%	6%	7%	7%
Saskatchewan	5%	5%	5%	6%	7%	7%
Yukon	5%	5%	5%	6%	7%	7%

**The HST breakdown:**

- The HST rate of 12% includes the 5% federal part and 7% provincial part.
- The HST rate of 13% includes the 5% federal part and 8% provincial part.
- 2) The HST rate of 14% includes the 5% federal part and 9% provincial part. (As of April 1, 2013)
- 1) The HST rate of 15% includes the 5% federal part and 10% provincial part. (As of July 1, 2010)
- The HST rate of 14% includes the 6% federal part and 8% provincial part.
- The HST rate of 15% includes the 7% federal part and 8% provincial part.

Finding the tax...

Amount of Tax = Regular Price x Tax (as a decimal)

Total Cost = Regular Price + Tax

Find total cost...

**Shortcut to calculating tax?**

Find the total cost (including HST) for each of the following...





Arlene purchases fabric at a wholesale price for her custom sewing business in Cavendish, PEI.

She pays \$46.00/m.  
She charges a markup of 20% on the fabric.  
What will Arlene charge her clients per metre?



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What will Arlene charge her clients per metre?

1. Cost x Percent

$$\begin{aligned} &\$46.00 \times 0.20 \\ &\quad \quad \quad \$9.20 \end{aligned}$$

2. Cost + Markup

$$\begin{aligned} &\$46.00 + \$9.20 \\ &\quad \quad \quad \$55.20 \end{aligned}$$

OR

Cost x Percent

$$\begin{aligned} &\$46.00 \times 1.20 \\ &\quad \quad \quad \$55.20 \end{aligned}$$

DISCUSS THE IDEAS

CONCERT PROMOTER

Imagine that you are a concert promoter. You are responsible for promoting concerts for up-and-coming bands and selling tickets to these concerts. For your next concert, you have set a ticket price based on the amount it will cost you to put on the concert, plus a 30% profit.

Consider the following situations.

1. If ticket sales are high and you realize you are going to sell out quickly, what could you do?
2. If ticket sales are low and you realize you will not be able to sell them all, what could you do?
3. Under what circumstances might you consider selling tickets for a price that would not cover the

SAMPLE SOLUTIONS

1. Raise the prices, see if you can add another show, limit the number of tickets per person.
2. Lower the prices, increase the promotions/ads, give tickets away as radio prizes.
3. There are not many circumstances, since your goal is to at least break even. However, in some dire circumstances, it may be better to make some money rather than no money.



The Dardanelles, a band from Newfoundland, play at Nova Scotia's Lunenburg Folk Harbour Festival.

DISCUSS THE IDEAS

SEASONS AND HOLIDAYS

The demand for many goods and services varies with the seasons and, as a result, so does the price of these goods and services. Consider summer and winter in different parts of the country. Can you name some goods or services that have higher prices in summer or winter?

Demand for many items also increases around holidays, which may cause an increase in the price. In small groups, discuss the following questions.

1. Consider the price of roses. What time of year are roses most expensive? Why?
2. Consider the price of a litre of gasoline. What time of year is gasoline most expensive? Why?
3. Name two or three other goods or services that have a higher price at certain times. Why do their prices fluctuate?
4. Name two or three products that command higher prices because they are rare or unique.
5. Find two examples where prices are advertised in a way that makes an item seem less expensive. Share your examples with your classmates.



In many cultures, flowers are a common gift for special occasions.

SAMPLE SOLUTIONS

1. Mother's Day (May), high school graduation (June), and weddings (summer) tend to be a high volume time. Students may think of other events that may cause a demand for roses (for example, Valentine's Day).
2. Summer: road trips tend to increase. In light of rising gasoline costs, encourage students to talk about trade and economic fluctuations.
3. The price of toys at Christmas: students will be able to suggest many examples.
4. Certain jewellery pieces, such as blue diamonds or real fresh-water pearls, expensive watches like Patek Philippe or Rolex, rare art works, first edition books, certain foods such as caviar.
5. Answers will vary, but students may notice that prices are often set just below a psychological turning point, such as \$39.95 instead of \$40.00. Other examples in which goods and services are advertised to seem less expensive than they are include plane fares that do not include taxes and fuel surcharges, one-way trips instead of round trips, hotel prices quoted by one night prices when a minimum stay is three nights. Sometimes manufacturers advertise an old price but have reduced the size of the package. Selling foods using the 100-gram price rather than the price per pound or kilogram also creates the impression that items are less expensive than they are.



HW: Page 32  
Questions 1 - 8

[1.3 Build Your Skills Detailed Solutions.pdf](#)

**WARM-UP...**



Ms. Ronan purchases an order of 425 comic books for \$700.00. She plans to mark the price up by 90%. What will she charge her customers for one comic book?

**SOLUTION...**

Delete to reveal



Questions from the Homework???

[1.3 Build Your Skills Detailed Solutions.pdf](#)

click [HERE](#) to see detailed answers (if needed)

**MATH ON THE JOB**

Danielle is the owner of a company in Saint John, New Brunswick, that installs ceramic tile, marble, slate, terrazzo, and granite for exterior and interior walls, floors, and other surfaces. Early spring is a slow time for this type of business, so Danielle's company is offering discounts on materials left in stock from last year. To get the most from this **promotion**, Danielle needs to calculate what percentage discount to offer on each type of material, taking into account what her costs were and how much stock remains. She may also offer a variety of discounts based on quantities bought.

The company has in stock 12" x 12" slate in sandstone colour that sold for \$6.99 per square foot last year. If Danielle offers it at a 15% discount, what will the sale price be for 50 square feet of slate, before taxes?

*During periods when business is slow, a business owner can increase sales by getting in touch with past or potential clients.*



**SOLUTION**

Imperial measurements are standard in the construction trades. Discuss with students the number of tiles needed. Each tile is 12" x 12" or 1' x 1'. Calculate using feet since the price is given per square foot. Since 50 square feet of slate are needed, calculate the cost of 50 tiles.

Note: Some students may not understand the concept of "square feet." Draw a square on the board and label each side as 4. Then draw in vertical and horizontal lines within the square to total 16 boxes within the space. Each side measures 4 linear feet. The area within the square becomes the square footage since the area of the square (4 x 4) is 16. In this example, 50 square feet could be represented by a 10' x 5' rectangle or a 25' x 2' rectangle, or some other shape. Point out that the shape does not have to be a square; remind students that it is area that is being discussed.

**COST METHOD 1: 2-step process**

First find the percent discount on one tile and subtract that amount from the original price. Remember to convert the percent to a decimal.

$$\begin{aligned} \$6.99 \times 0.15 &= \$1.0485 \\ \$6.99 - \$1.05 &= \$5.94 \text{ per tile} \\ \$5.94 \times 50 &= \$297.00 \end{aligned}$$

**COST METHOD 2: 1-step process**

If the discount per tile is 15%, then you can calculate the discount percentage.

$$\begin{aligned} 100\% - 15\% &= 85\% \\ \$6.99 \times 0.85 &= \$5.94 \text{ a tile} \end{aligned}$$

Multiply to find the total cost.

$$\$5.94 \times 50 = \$297.00$$

Copy these two notes...

**promotion:** an activity that increases awareness of a product or attracts customers

**Common Discounts...**

- 70 % off
- save \$30
- BOGO
- 1/2 price



**EXAMPLE:**

Jonas needs to buy a new winter jacket. He has waited for a sale, and a jacket that originally cost \$249.95 is now discounted 20%. How much will the jacket cost if Jonas lives in Nova Scotia, where HST is 15%?

**This Way:**

Focus... How much is taken off?

1) SOLUTION...  
Delete to reveal

2)

3)

**That way:**

Focus...

How much do you still have to pay?

1) SOLUTION...  
Delete to reveal



Copy these formulas...

What percent did you pay?

$$\frac{\text{Amount Paid}}{\text{Total Amount}} \times 100 \%$$

$$\frac{\$76.49}{\$89.99} = 0.85$$

85%

\$76.49 Sale Price



\$89.99 Regular Price

What percent did you save?

$$\frac{\text{Amount saved}}{\text{Total Amount}} \times 100 \%$$

$$\frac{\$89.99 - \$13.50}{\$89.99} = 0.15$$

15%



\$89.99 Regular Price  
\$76.49 Sale Price

Rate of Discount

- is equal to...

$$\frac{\text{Amount of Discount}}{\text{Regular Price}} \times 100 \%$$

ex: Reg. ⇒ \$299.00  
Sale Price ⇒ \$279.00  
What is the rate of discount?

SOLUTION...  
Delete to reveal

Determine the **rate of discount** in each of the following...

Rate = 30 %

Rate = 33 %

Rate = 70 %

Rate = 21 %

SOLUTION...  
Delete to reveal

SOLUTION...  
Delete to reveal

Ⓒ  $40\%$  of  $75 = 30$   
 $0.40 \times 75 = 30$

Ⓓ  $30\%$  of  $70 = 21$   
 $0.30 \times \underline{\quad} = 21$   
 $\frac{70}{0.3} = \underline{21}$

Ⓙ  $\underline{\quad}\%$  of  $25 = 8$   
 $\underline{\quad} \times 25 = 8$   
 $\frac{0.32}{25} = \underline{\frac{8}{25}}$   
 $32\% =$

Ⓢ  $\frac{14.4}{60} = \underline{24\%}$



**HOMEWORK**

Page 37 Questions <sup>1,2,3</sup> ~~1,2,3~~

ailed Solutions.pdf



**Currency:** The system of money a country uses.

**exchange rate:** the price of one country's currency in terms of another nation's currency

- exchange rates fluctuates day to day.
- international trade depends on currency.
- banks, travel agents, business owners, tourists must consider exchange rates.
- may need to order in advance and fees are involved.





**MATH ON THE JOB**

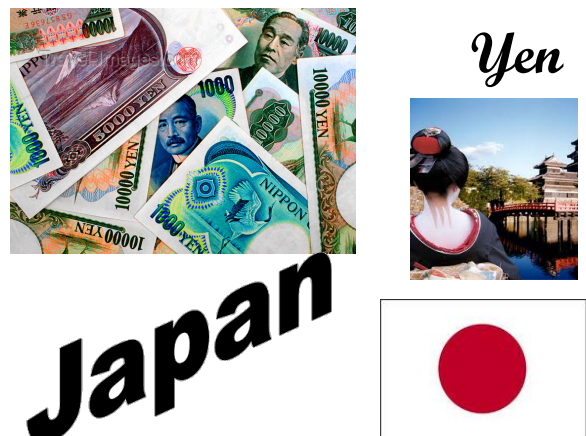
Dean MacEachern grew up in Cornwall, Prince Edward Island, and attended Bluefield High School in Hampshire. Dean is now the plant manager for Rodney's Oyster Depot. "My main duties are shipping and receiving of oysters. I also do the sales to and invoicing of clients," he says. Dean is also responsible for ensuring that the quality of the oysters he sells meets or exceeds the standards set by the Canada Food Inspection Agency (CFIA).

Oyster distributors from different countries purchase oysters, by the piece, from Dean. He must ask for and compare price quotes in the currency of the country the oysters will go to. When selling oysters to an American distributor, Dean uses information on the exchange rate, gathered over a 60-day cycle, to estimate a competitive price he can sell the oysters for. The exchange rate changes every day during this cycle. What strategies can Dean use to estimate a competitive price?

Dean displays oysters ready for sale at Rodney's Oyster Depot. After a shipment of oysters is received, the oysters are graded and sold to domestic and international customers.

**SOLUTION**

Dean could use exchange rate information from a 60-day cycle to calculate an "average" oyster price for this period. The average price would be a competitive price he could negotiate for with the American distributor.



**Scotland**



**Pound**



**Dollar**



**Singapore**



**Switzerland**

**Franc**



**Egypt**



**Pound**



**Buying Rate** The rate at which a currency exchange buys money from customers



The rate at which a currency exchange sells money to its customers **Selling Rate**

**Exchange Rate**  
The price of one country's currency in terms of another nation's currency.



Canadian Dollar	
click on values to see graphs	1 CAD in CAD
American Dollar	1.0146 0.98561

USD	1.000
CAD	1.063



$0.924 \dots \rightarrow 1.08$

$1 \text{ US} = 1.5 \text{ CDN}$

$0.67 \text{ US} = 1 \text{ CDN}$

$\frac{1}{1.5}$

**EXAMPLE #1:**

On a specific date, the selling rate for the Danish krone compared to the Canadian dollar is 0.221778. How many kroner will you receive for \$500.00 CAD?



$$\$500 \text{ CAD} \times \frac{1 \text{ Krone}}{0.221778 \text{ CAD}} = \$2254.51$$

**HINT**  
The unit of Danish currency is the krone, which is the Danish word for crown. The plural of krone is kroner.

Let's do a conversion...  
Delete to reveal

**EXAMPLE #2:**

On the same day as the previous example, the buying rate for kroner was 0.210778. If, after purchasing your kroner, you decided not to go to Denmark and sold the kroner back to the bank, how much would you lose?

By inverting

$$2254.51 \text{ Krone} \times \frac{0.210778 \text{ CAD}}{1 \text{ Krone}} = \$475.20$$



**LOSS:** 500 - 475.20 = \$24.80

Solution...  
Delete to reveal

**Discuss... Rates in Can. Dollars**

**FIGURE 1.2**  
Exchange Rates Compared to the Canadian Dollar

Bank buying rate	Country	Currency units	Bank selling rate
0.950964	Australia	dollar	1.006964
1.580814	Austria	euro	1.644814
1.580814	Belgium	euro	1.644814
0.534900	Brazil	real	0.697000
0.127100	China	yuan	0.162600
0.210778	Denmark	kroner	0.221778
1.996146	England	pound	2.060146
0.159300	Egypt	pound	0.217300
1.580814	European Community	euro	1.644814
1.580814	Finland	euro	1.644814
1.580814	France	euro	1.644814
1.580814	Greece	euro	1.644814
0.128451	Hong Kong	dollar	0.133451
1.580814	Italy	euro	1.644814
0.009295	Japan	yen	0.009855
0.012510	Kenya	shilling	0.017300
0.083443	Mexico	peso	0.108443
1.580814	Netherlands	euro	1.644814
0.748264	New Zealand	dollar	0.798264
1.996146	N. Ireland	pound	2.060146
0.194863	Norway	kroner	0.205863
0.012360	Pakistan	rupee	0.019360
1.580814	Portugal	euro	1.644814
1.580814	Republic of Ireland	euro	1.644814
1.996146	Scotland	pound	2.060146
0.737280	Singapore	dollar	0.762280
1.580814	Spain	euro	1.644814
0.165558	Sweden	krona	0.175558
0.982007	Switzerland	franc	1.017007
0.026550	Thailand	baht	0.035120
1.004350	United States	dollar	1.038650



\* Rates as of October 24, 2008



**EXERCISE:** Use the table on page 45 to answer the following questions. (Solutions on the next slide)



1) Calculate the amount of money you would receive in Canadian dollars if you sold 4500 shillings to the bank.


2) Arnold is making a movie in Thailand, his travel allowance is \$3000. How much money will he have in the local currency for his expenses in Thailand.

$$4500 \text{ shillings} \times \frac{0.012510 \text{ CDN}}{1 \text{ shilling}} = 56.295 \text{ CDN}$$

$$\$3000 \text{ CDN} \times \frac{1 \text{ baht}}{0.035120 \text{ CDN}} = 85421.41 \text{ baht}$$



- 1) Calculate the amount of money you would receive in Canadian dollars if you sold 4500 shillings to the bank.

Buying Rate for Kenya 0.0125/0  
 $4500 \text{ shillings} \times \frac{0.0125 \text{ CAD}}{1 \text{ shillings}} = \$56.25$  

- 2) Arnold is making a movie in baht Thailand, his travel allowance is \$3000. How much money will he have in the local currency for his expenses in Thailand.
- $3000 \text{ CAD} \times \frac{1 \text{ baht}}{0.035120 \text{ CAD}} = 85421.41 \text{ baht}$  *selling rate  $\rightarrow 0.035120$*

**HOMEWORK: Page 47 #1 - 7**

**1.5 Build Your Skills Detailed Solutions.pdf**

**Buying Rate** The rate at which a currency exchange buys money from customers



**Selling Rate**

The rate at which a currency exchange sells money to its customers

**Exchange Rate**

The price of one country's currency in terms of another nation's currency.



Canadian Dollar		
click on values to see graphs	1 CAD	in CAD
American Dollar	1.0146	0.98561

The 'Toronto Stock Exchange'...TSX

- <http://www.investcom.com/forex/forex.htm>
- <http://atlantic.ctv.ca/>
- <http://www.ctv.ca/business/>
- <http://www.theglobeandmail.com/globe-investor/>
- <http://www.xe.com/currencycharts/?from=CAD&to=USD&view=1Y>

US Dollar (\$C)	-0072	1.010
Cdn Dollar (\$US)	+0070	.991
U.S. Dollar (Euro)	-0003	.748
U.S. Dollar (Yen)	+04	77.720



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**HINT**  
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On the same day as the previous example, the buying rate for kroner was 0.210778. If, after purchasing your kroner, you decided not to go to Denmark and sold the kroner back to the bank, how much would you lose?



**\$** Use the table on page 45  to answer the following questions.

Calculate the amount of money you would receive in Canadian dollars if you sold 4500 shillings to the bank.

← **\$**

Arnold is making a movie in Thailand, his travel allowance is \$3000. How much money will he have in the local currency for his expenses in Thailand.

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0.026550	Thailand	baht	0.035120
1.004350	United States	dollar	1.038650



\* Rates as of October 24, 2008



Use the table on page 45 to answer the following questions.

Calculate the amount of money you would receive in Canadian dollars if you sold 4500 shillings to the bank.



Use the table on page 45 to answer the following questions.

Arnold is making a movie in Thailand, his travel allowance is \$3000. How much money will he have in the local currency for his expenses in Thailand.

THE ROOTS OF MATH

CANADIAN CURRENCY



This placemat is an example of Mi'kmaq quillwork. It was made in Nova Scotia around the year 1860.

Haida symbols adorn the \$20.00 Canadian 2004 bill. Today, this \$20.00 bill can be exchanged for something, such as groceries or a haircut. Traditionally, the Haida and other Aboriginal groups also had currency exchange systems—between and within groups and with European traders.

Among the Iroquois people, wampum came to be used as a kind of money. Wampum is a European word derived from the Algonquian word *wampumpeag*. Wampum were often small beads made from white or purple shells, but other media such as coarse animal hair were also used to create wampum.

Traditionally, wampum had complex uses. It was a system of record-keeping and was used to record important historical events such as peace treaties and trade agreements made between Aboriginal peoples. It was also used for personal decoration. After Europeans arrived, wampum came to be used as a currency in the fur trade between Aboriginal peoples and Europeans.

In Atlantic Canada, currency was uncommon among the Mi'kmaq, Wolastogewiyik, and other First Nations people before European contact. They depended on the natural resources of their surroundings, and had little use for currency. After the arrival of Europeans, Mi'kmaq women began to craft items exclusively for trade. The women used dyed porcupine quills to create baskets, boxes, and other ornamental items. Later, the Mi'kmaq began to trade the fur of animals for items such as flour and tools.

1. Do you know of other items that were traditionally used by Aboriginal peoples for trading or exchange?
2. Have you ever traded either a good, like a CD you no longer wanted, or a service, like mowing the lawn, with another person for something you wanted without exchanging money? How did you determine the value of your good or service?
3. Why do you think \$5.00 is worth \$5.00? What gives money its value?

SOLUTIONS

1. Answers will vary. In Atlantic Canada, the Mi'kmaq people traded hand-crafted snowshoes and birchbark canoes. Other items used for trade by First Nations people included preserved meats, rare stones, tools, and furs.
2. Answers will vary. Possible factors to consider when determining the value of goods or services include the time spent providing a service, the original monetary value of the item, or the rarity of the item.
3. Answers will vary. Possible answers could include that money is valuable because it can be exchanged for goods or services, or that the value of a country's currency depends on the strength of its economy.

**HOMEWORK: Page 47 #1 ~~4~~ 5**

**1.5 Build Your Skills Detailed Solutions.pdf**

#1, 2 just look at it

#3-5

#4.  $\frac{\$1200 \text{ CDN} \times 1 \text{ Euro}}{1.644617 \text{ CDN}}$



**Ready for the TEST??? HOMEWORK: Page 50 #1 - 9**

Chapter 1 Unit Pricing and Currency Exchange - Practice Your Skills.pdf

**REFLECT ON YOUR LEARNING**

**UNIT PRICING AND CURRENCY EXCHANGE**

Now that you have finished this chapter, you should be able to

- apply your prior knowledge of ratios and rates in new contexts;
- appreciate how proportional reasoning is used in several jobs;
- calculate unit price and use your knowledge to determine the best buy;
- understand some of the factors that influence how prices are set;
- predict the impact of promotions on prices;
- consider other factors, such as quality and your needs, when making purchasing decisions, at home or in the workplace;
- comprehend how foreign currencies are bought and sold.

## Attachments

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1.1 Build Your Skills Detailed Solutions.pdf

1.2 Build Your Skills Detailed Solutions.pdf

1.3 Build Your Skills Detailed Solutions.pdf

1.4 Build Your Skills Detailed Solutions.pdf

1.5 Build Your Skills Detailed Solutions.pdf

Chapter 1 Unit Pricing and Currency Exchange - Practice Your Skills.pdf