ALBERTA DISTANCE LEARNING CENTRE
Mathematics 10C
MAT1791
Workbook 1.5

Student's Questions and Comments

FOR STUDENT USE ONLY
Student Name: _____

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Assigned to _____
Marked by _____
Date received _____

Summary

	Marks Earned	Total Possible Marks	Percent
1.5 Practice – VI	**I have _____ /8 and _____ %.**		
Lesson 1.5 Assignment		12	

Teacher's Comments:

_____

Teacher's Signature

REVISED February 2019

CANADIAN CATALOGUING IN PUBLICATION DATA

MAT1791
Mathematics 10C
ISBN: 978-1-927090-75-6
Workbook 1.5

4601 - 63 Avenue
Barrhead, Alberta Canada T7N 1P4

Printed in Canada

Alberta Distance Learning Centre website:

http://www.adlc.ca

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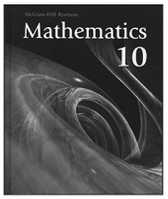

Mathematics 10

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Practice Assessment

The *Practice* section provides exercise questions and allows you to self-reflect on your conceptual understanding of the *Lesson* skills. You will mark your *Practice* work in each *Workbook* according to the following rubric.

Category	Strategy and Procedures	Response to Questions
	I have…	*I have…*
4	• used efficient and effective strategies to solve the problem(s)	• provided detailed explanations and followed directions appropriately to complete all questions
3	• used effective strategies to solve the problem(s)	• provided clear explanations and followed directions adequately to complete most questions
2	• used effective strategies inconsistently to solve the problem(s)	• provided incomplete explanations and followed some directions to complete a few questions
1	• used ineffective strategies to solve the problem(s)	• provided incomplete explanations and have not followed directions to complete some questions

Complete *Practice* exercises using your best work, showing all relevant steps needed to arrive at your solution. Refer to the *Module* to review lesson instructions. Contact your teacher for assistance or clarification as needed, or to investigate the topic further.

Check and correct your work using the solutions provided in *Appendix* in the *Module*.

Practice is worth 8 marks.

After you have assessed your work, reflect on your understanding of the concepts in the table provided at the end of each *Practice* section.

Lesson 1.5: Conversions Between SI and Imperial

Complete the *Practice* below. When you have completed all the questions for *Lesson 1.5 Practice – VI* with your best work, mark your work by first comparing your answers to the solutions provided in the *Appendix*. Then, apply the rubric found at the beginning of the *Workbook*.

Practice – VI

1. Why are there two conversion ratios listed for each pair of measurements listed in the conversion table in *Lesson 1.5*?

2. Complete the following conversions.

   a. 10 m to yd

   b. 159 lbs to kg

   c. 34 miles per hour to kilometres per hour

3. The diagram shows a thermometer with both Celsius and Fahrenheit scales.

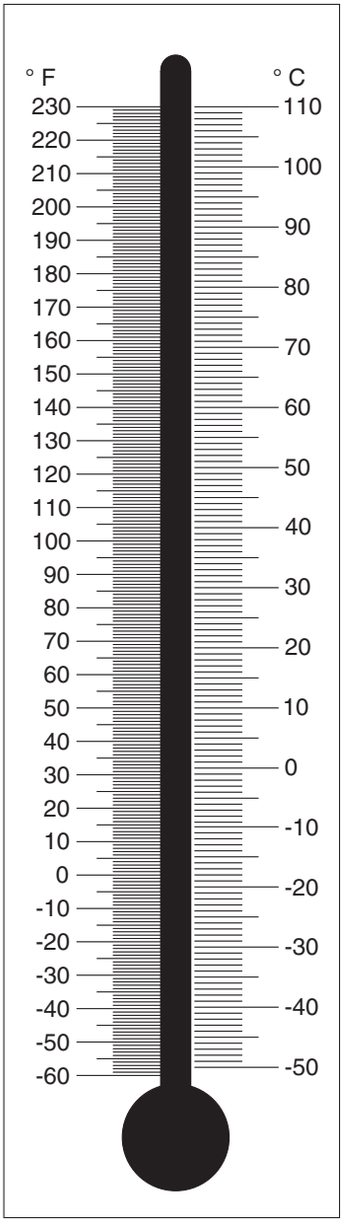
   a. Describe how a thermometer with both scales can be used to convert between °C and °F.

   b. Use your strategy to convert

      i. 50°C to °F

      ii. –10°F to °C

   c. So far in this *Unit* you have always been able to use a proportion to convert between units. Explain why you cannot use the same strategy to convert between Celsius and Fahrenheit.
   (Hint: Zero will be important to your explanation.)



4. You are considering purchasing one of two used vehicles. Online, you have found that one vehicle has a fuel economy of 36 mi/gal and the other has a fuel economy of 7.2 L/100 km. Assuming imperial gallons were used, which of the two vehicles is more fuel efficient? Be sure to explain your reasoning.

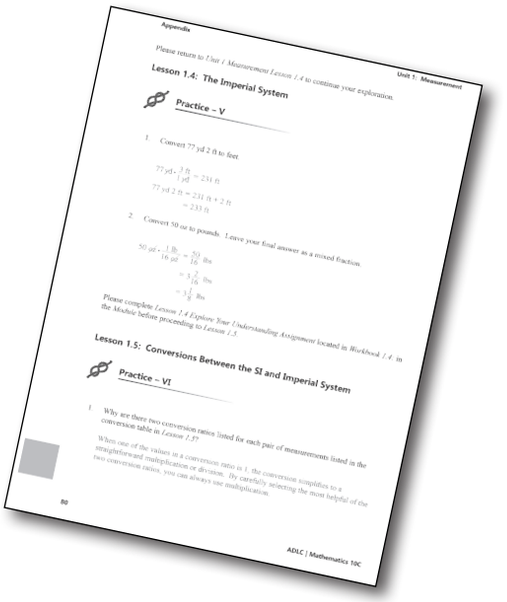
Mark your work for *Lesson 1.5 Practice – VI* using the solutions provided in the *Appendix*. Then, apply the rubric found at the beginning of the *Workbook*.

Transfer your self-assessed mark to the front cover of the *Workbook*.

My self-assessed mark on *Lesson 1.5 Practice – VI* is _____.

Reflect on your understanding of the concepts addressed in the *Practice* exercises in the table provided.

Question Number	Got it!	Almost there…	Need to retry or ask for help.
1			
2			
3			
4			


Appendix

Please return to *Unit 1: Measurement Lesson 1.4* to continue your exploration.

Unit 1: Measurement

Lesson 1.4: The Imperial System

Practice – V

1. Convert 77 yd 2 ft to feet.

$77\text{ yd} \cdot \frac{3\text{ ft}}{1\text{ yd}} = 231\text{ ft}$

$77\text{ yd } 2\text{ ft} = 231\text{ ft} + 2\text{ ft}$

$= 233\text{ ft}$

2. Convert 50 oz to pounds. Leave your final answer as a mixed fraction.

$50\text{ oz} \cdot \frac{1\text{ lb}}{16\text{ oz}} = \frac{50}{16}\text{ lbs}$

$= 3\frac{2}{16}\text{ lbs}$

$= 3\frac{1}{8}\text{ lbs}$

Please complete *Lesson 1.4 Explore Your Understanding Assignment* located in *Workbook 1.4* in the *Module* before proceeding to *Lesson 1.5*.

Lesson 1.5: Conversions Between the SI and Imperial System

Practice – VI

1. Why are there two conversion ratios listed for each pair of measurements listed in the conversion table in *Lesson 1.5*?

When one of the values in a conversion ratio is 1, the conversion simplifies to a straightforward multiplication or division. By carefully selecting the most helpful of the two conversion ratios, you can always use multiplication.

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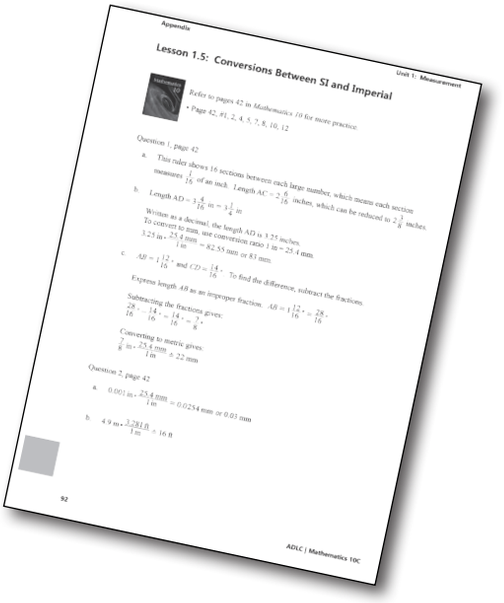
You may proceed to *Explore Your Understanding Assignment* on the next page of this *Workbook*.

Note: Before you complete *Explore Your Understanding* you may review your skills and get more practice by completing the following problems in *Mathematics 10*.

- Page 42, #1, 2, 4, 5, 7, 8, 10, 12

Check your work in *Enhance Your Understanding*.


Appendix

Unit 1: Measurement

Lesson 1.5: Conversions Between SI and Imperial

Refer to pages 42 in *Mathematics 10* for more practice.

- Page 42, #1, 2, 4, 5, 7, 8, 10, 12

Question 1, page 42

a. This ruler shows 16 sections between each large number, which means each section measures $\frac{1}{16}$ of an inch. Length $AC = 2\frac{6}{16}$ inches, which can be reduced to $2\frac{3}{8}$ inches.

b. Length $AD = 3\frac{4}{16}\text{ in} = 3\frac{1}{4}\text{ in}$

Written as a decimal, the length AD is 3.25 inches.
To convert to mm, use conversion ratio 1 in = 25.4 mm.
$3.25\text{ in} \cdot \frac{25.4\text{ mm}}{1\text{ in}} = 82.55\text{ mm}$ or 83 mm.

c. $AB = 1\frac{12}{16}$ and $CD = \frac{14}{16}$. To find the difference, subtract the fractions.

Express length AB as an improper fraction. $AB = 1\frac{12}{16} = \frac{28}{16}$

Subtracting the fractions gives:
$\frac{28}{16} - \frac{14}{16} = \frac{14}{16} = \frac{7}{8}$

Converting to metric gives:
$\frac{7}{8}\text{ in} \cdot \frac{25.4\text{ mm}}{1\text{ in}} \approx 22\text{ mm}$

Question 2, page 42

a. $0.001\text{ in} \cdot \frac{25.4\text{ mm}}{1\text{ in}} = 0.0254\text{ mm}$ or 0.03 mm

b. $4.9\text{ m} \cdot \frac{3.281\text{ ft}}{1\text{ m}} \approx 16\text{ ft}$

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Lesson 1.5: Conversions Between SI and Imperial

Explore Your Understanding Assignment

(2) 1. Using a rounded version of a conversion ratio allows for a quick estimate of a unit conversion using mental math or paper and pencil (no calculator). Show an example of a unit conversion estimation using this strategy.

(2) 2. Explain why the conversion ratios used between the SI and imperial systems are not nice, round numbers like those used to convert within either system.

(2) 3. A common field measurement used in agriculture in Alberta is the quarter section. A quarter section is $\frac{1}{2}$ mi long and $\frac{1}{2}$ mi wide. Determine the length of a quarter section, in metres.

(3) 4. How many 4′ × 8′ sheets of plywood are required to cover a floor that is 9 m by 16 m?

(3) 5. At a grocery store, an uncooked beef roast is on sale for $4.99/lb. At the same grocery store, prepared roast beef is available at the deli for $2.99/100g. How many times more expensive is the deli roast compared to the uncooked roast?

/12