

Adult Basic Education

# Level II Mathematics

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## Mathematics 2012 Fractions

### Study Guide

**Suggested Resource:** *Prism Math Blue Student Workbook (Canadian Edition)*. McGraw-Hill Ryerson. 2005. ISBN 13: 978-0-07-096033-6 (10:0-07-096033-X).

**Level II Mathematics Courses**

Mathematics 2011: Whole Numbers

**Mathematics 2012: Fractions**

Mathematics 2013: Decimals

Mathematics 2014: Percents

Mathematics 2015: Interest

Mathematics 2016: Measurement

Mathematics 2017: Geometry

Mathematics 2018: Statistics and Probability

Mathematics 2019: Algebra Readiness I

Mathematics 2020: Algebra Readiness II



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## To the Student

### *Who should do Mathematics 2012: Fractions?*

You should do this course if you need extra practice adding, subtracting, multiplying, and dividing fractions. If you completed ABE Level I, this is recommended as your second ABE Level II Mathematics course.

You do not have to complete all the Level II Mathematics courses to move into ABE Level III. The decision to do all or some of the Level II Mathematics courses will be made based on your instructor's assessment. The following will be taken into consideration in this assessment: your previous education, your CAAT (or another standardized test) result, your work experience, your future employment/post-secondary goals, your progress in Level II courses, or any other factor impacting your future success in Level III. For example, if you wish to pursue the Degree and Technical Profile (Academic) in Level III, you will likely have to complete all Level II Mathematics courses. If you intend to pursue the General College Profile (General) in Level III, you may only have to complete a selection of Level II Mathematics courses.

### *What is the Mathematics 2012 Study Guide?*

The Study Guide describes all the work that is required for the completion of this course. It also contains references and notes to help you.

### *How should I Use the Study Guide?*

Before beginning to do the work in this Study Guide, you will need to talk to your instructor about the course and the resources you will need. You should work through the Study Guide page by page, consulting with your instructor as you go.

### *How is the Study Guide organized?*

The Study Guide is organized in two columns, as follows:

<b>Required Work</b>	<b>Suggested Resources/Notes</b>
This column provides a numbered list of all the work you are required to do for the course.	This column gives important information on the resources being used and some notes to help you complete the required work.

## To the Student

### **Important Notes**

This Study Guide is intended to make it possible for you to work independently in Adult Basic Education. If you use the Study Guide correctly, you may be able to work on your own for certain periods of time. You should always make sure that your instructor is aware of what you are doing. Feel free to ask your instructor for help and guidance at all times.

You should complete all the **Required Work** in this study guide without a calculator. A calculator can be used to check your answers, but it should not be used to simply complete the **Required Work** faster.

## Unit 1: Multiplication and Division

<b>Required Work</b>	<b>Suggested Resources/Notes</b>
<p>1. Read Lesson 1 on page 43 of the text, and then complete numbers 1-6 (all items).</p> <p>2. Read Lesson 2 on page 44 of the text, and then complete numbers 1-7 (all items).</p> <p>3. Read Lesson 3 on page 45 of the text, and then complete numbers 1-5 (all items).</p>	<ul style="list-style-type: none"><li>• Make sure you multiply numerator (top number) by numerator and denominator by denominator.</li><li>• Do not cross multiply.</li><li>• Make sure you list all the factors of a numerator. If you do not list all the factors of a number, it is possible to miss the greatest common factor (GCF).</li><li>• Make sure you divide the numerator and denominator by the GCF. If not, you will have to divide again to get into simplest form.</li></ul>

## Unit 1: Multiplication and Division

<b>Required Work</b>	<b>Suggested Resources/Notes</b>
<p>4. Read Lesson 4 on page 46 of the text, and then complete numbers 1-5 (all items).</p> <p>5. Read Lesson 5 on page 47 of the text, and then complete numbers 1-5 (all items).</p> <p>6. Read Lesson 6 on page 48 of the text, and then complete numbers 1-5 (all items).</p> <p>7. Read Lesson 7 on page 49 of the text, and then complete the following:</p> <ul style="list-style-type: none"><li>a) Numbers 1-5 (all items)</li><li>b) Solve each word problem on page 50 of the text.</li></ul> <p>8. Read Lesson 8 on page 51 of the text, and then complete numbers 1-5 (all items).</p> <p>9. Read Lesson 9 on page 52 of the text, and then complete numbers 1-5 (all items).</p>	<ul style="list-style-type: none"><li>• Think: What is the advantage of simplifying fractions before multiplying them?</li><li>• Make sure you understand the process of changing a mixed number to a fraction. Ask your instructor if you do not fully understand this process.</li><li>• Make sure you correctly change mixed numbers into fractions.</li><li>• Ask your instructor if you do not fully understand each word problem.</li><li>• It may be helpful to draw a diagram for each word problem before doing calculations.</li><li>• Make sure you do not forget to multiply by the reciprocal when dividing fractions.</li></ul>

## Unit 1: Multiplication and Division

<b>Required Work</b>	<b>Suggested Resources/Notes</b>
<p>10. Read Lesson 10 on page 53 of the text, and then complete the following:</p> <ul style="list-style-type: none"><li>a) Numbers 1-4 (all items)</li><li>b) Solve each word problem on page 54.</li></ul>	<ul style="list-style-type: none"><li>• Make sure you simplify the fractions before you multiply by the reciprocal.</li></ul>

## Unit 2: Addition and Subtraction

<b>Required Work</b>	<b>Suggested Resources/Notes</b>
<p>1. Read Lesson 11 on page 55 of the text, and then complete the following:</p> <ul style="list-style-type: none"><li>a) Numbers 1-3 (all items)</li><li>b) Solve each word problem on page 56.</li></ul> <p>2. Read Lesson 12 on page 57 of the text, and then complete numbers 1-5 (all items).</p> <p>3. Read Lesson 13 on page 58 of the text, and then complete numbers 1-4 (all items).</p>	<ul style="list-style-type: none"><li>• Think: How do you add or subtract fractions with common denominators?</li><li>• You only add or subtract the numerators. Do not add/subtract the denominators.</li><li>• Ask your instructor if you do not fully understand each word problem.</li><li>• It may be helpful to draw a diagram for each word problem before doing calculations.</li><li>• It may be helpful when working with mixed numbers to cover the whole number until you have changed the fraction.</li><li>• Make sure you find a common denominator first before adding or subtracting the numerators.</li></ul>



## Unit 2: Addition and Subtraction

<b>Required Work</b>	<b>Suggested Resources/Notes</b>
<p>4. Read Lesson 14 on page 59 of the text, and then complete the following:</p> <ul style="list-style-type: none"><li>a) Numbers 1-4 (all items)</li><li>b) Solve each word problem on page 60 of the text.</li></ul> <p>5. Read Lesson 15 on page 61 of the text, and then complete the following:</p> <ul style="list-style-type: none"><li>a) Numbers 1-4 (all items)</li><li>b) Solve each word problem on page 62 of the text.</li></ul> <p>6. Read Lesson 16 on page 63, and then complete the following:</p> <ul style="list-style-type: none"><li>a) Numbers 1-4 (all items)</li><li>b) Solve each word problem on page 64 of the text.</li></ul>	<ul style="list-style-type: none"><li>• Make sure you do not forget to add or subtract the whole numbers.</li><li>• Think: It is possible to get a common denominator by multiplying the denominators. Why is this not always an efficient procedure?</li><li>• Make sure you change each fraction to common denominators before adding or subtracting.</li></ul>

## Unit 2: Addition and Subtraction

Required Work	Suggested Resources/Notes
<p>7. <u>Assignment #1</u>. Complete all items in the <i>Chapter 2 Practice Test: Operations Involving Fractions</i> on page 65 of the text. This assignment will also be your review for the final exam on this course. This assignment will be graded, and is a part of your official evaluation for this course.</p> <p>8. <u>Final Exam</u>. Write the final exam for <b>Mathematics 2012: Fractions</b>. This exam will be very similar to the assignment in number 7 above.</p>	<ul style="list-style-type: none"><li>• You should show all your calculations on the assignment. You may use a calculator to check your answers. Ask your instructor if you need any help with the assignment.</li><li>• Your instructor may require you to complete additional work if you do not get a satisfactory grade on <u>Assignment #1</u>.</li><li>• Only write the final exam for this course if you fully understand the material contained in the review.</li></ul>