Adult Basic Education

Mathematics

Mathematics 1104A

Coordinate Geometry, Factoring, Solving Quadratic Equations and Equations Involving Rational Expressions

Curriculum Guide

Prerequisite: Grade 9 Mathematics

Credit Value: 1

Required Mathematics Courses
[Degree and Technical Profile/Business-Related College Profile]

Mathematics 1104A
Mathematics 1104B
Mathematics 1104C
Mathematics 2104A
Mathematics 2104B
Mathematics 2104C
Mathematics 3104A
Mathematics 3104B
Mathematics 3104C

Table of Contents

To the Instructor

I. Introduction to Mathematics 1104A

This course has two distinct topics. Firstly, the Cartesian coordinate system is used to determine the slope of line segments as well as perpendicular line segments and parallel line segments. Students are encouraged to draw a neat diagram and work graphically as well as algebraically to solve a problem. The slopes of vertical and horizontal line segments are also discussed. These concepts are then extended to include lines which are really comprised of line segments. Students are given different information about a line and asked to find its equation (in standard form or $y = mx + b$ form) and draw its graph. Given the equation of a line, the intercepts and slope are determined and special cases are investigated.

The second topic looks at factoring *trinomials* of the form $ax^2 + bx + c$ and factoring a *difference of squares* which have a degree of 2. Students will use factoring to solve quadratic equations and equations involving rational expressions.

II. Prerequisites

Students taking this course should be able to work with functions and solve equations involving fractions. Students should also be able to make a table of values when given the equation of a line, plot ordered pairs, and solve equations for a given variable. Students must recognize and describe patterns in binomial products. They should also know the perfect squares from 1 to 144 (at least). Students should be able to determine the value(s) of the variable that make a polynomial equal to zero.

At the beginning of each section in the *Teacher's Resource Book*, there are **Prerequisites** exercises (with solutions).

III. Textbook

Most of the concepts are introduced, developed and explained in the **Examples**. The instructor must insist that students carefully study and understand each **Example** before moving on to the **Exercises**. In the Study Guide, students are directed to see the instructor if there are any difficulties.

To the Instructor

There are four basic categories included in each section of the textbook which require the student to complete questions:

1. Investigate
2. Discussing the Ideas
3. Exercises
4. Communicating the Ideas

Investigate: This section looks at the thinking behind new concepts. The answers to its questions are found in the back of the text.

Discussing the Ideas: This section requires the student to write a response which clarifies and demonstrates understanding of the concepts introduced. The answers to these questions are not in the student text but are in the *Teacher's Resource Book*. Therefore, in the Study Guide, the student is directed to see the instructor for correction. This will offer the instructor some perspective on the extent of the student's understanding. If necessary, reinforcement or remedial work can be introduced. Students should not be given the answer key for this section as the opportunity to assess the student's understanding is then lost.

Exercises: This section helps the student reinforce understanding of the concepts introduced. There are three levels of **Exercises**:

A: direct application of concepts introduced;
B: multi-step problem solving and some real-life situations;
C: problems of a more challenging nature.

The answers to the **Exercises** questions are found in the back of the text.

Communicating the Ideas: This section helps confirm the student's understanding of a particular lesson by requiring a clearly written explanation. The answers to **Communicating the Ideas** are not in the student text, but are in the *Teacher's Resource Book*. In the Study Guide students are asked to see the instructor for correction.

IV. Technology

It is important that students have a **scientific** calculator and its manual for their individual use. Ensure that the calculator used has the word "scientific" on it as there are calculators designed for calculation in other areas such as business or statistics which would not have the functions needed for study in this area.

To the Instructor

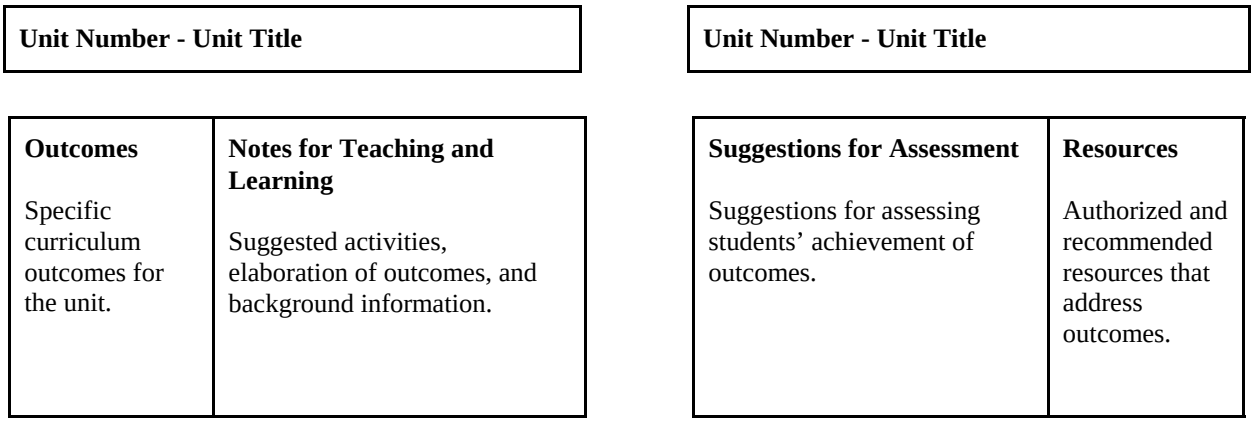
A graphing calculator should be **available** to the students since the text provides many opportunities for its use. The *Teacher's Resource Book* suggests many occasions to utilize a graphing calculator. These suggestions are outlined where there is the heading *Integrating Technology*. In the Study Guide, students are directed to see the instructor when a graphing calculator is required. The *Teacher's Resource Book* contains a module called **Graphing Calculator Handbook** which will help the instructor and student get acquainted with some of the main features of the TI-83 Plus graphing calculator.

Graphing software such as *Graphmatica* or *Winplot* can also be used it the students don't have access to a graphing calculator but do have access to a computer. The textbook doesn't offer the same guidance for graphing with these tools as it does for a graphing calculator but each software program does have a HELP feature to answer questions.

V. Curriculum Guides

Each new ABE Mathematics course has a Curriculum Guide for the instructor and a Study Guide for the student. The Curriculum Guide includes the specific curriculum outcomes for the course. Suggestions for teaching, learning, and assessment are provided to support student achievement of the outcomes. Each course is divided into units. Each unit comprises a **two-page layout of four columns** as illustrated in the figure below. In some cases the four-column spread continues to the next two-page layout.

Curriculum Guide Organization:
The Two-Page, Four-Column Spread



VI. Study Guides

The Study Guide provides the student with the name of the text(s) required for the course and specifies the sections and pages that the student will need to refer to in order to complete the required work for the course. It guides the student through the course by assigning relevant reading and providing questions and/or assigning questions from the text or some other resource. Sometimes it also provides important points for students to note. (See the *To the Student* section of the Study Guide for a more detailed explanation of the use of the Study Guides.) The Study Guides are designed to give students some degree of independence in their work. Instructors should note, however, that there is much material in the Curriculum Guides in the *Notes for Teaching and Learning* and *Suggestions for Assessment* columns that is not included in the Study Guide and instructors will need to review this information and decide how to include it.

VII. Resources

Essential Resources

Addison Wesley Mathematics 10 (Western Canadian edition)
ISBN:0-201-34619-2

Mathematics 10 Teacher's Resource Book (Western Canadian edition) ISBN: 0-201-34621-4

Math 1104A Study Guide

Recommended Resources

*Mathematics 10 Independent Study Guide (*Western Canadian edition) ISBN: 0-201-34620-6

Center for Distance Learning and Innovation: http://www.cdli.ca

Winplot: http://math.exeter.edu/rparris/winplot.html
(Free graphing software)
Graphmatica (Evaluation software available on CD-ROM contained in *Teacher's Resource Book*)

To the Instructor

Other Resources

Math Links: http://mathforum.org

http://www.purplemath.com

http://www.sosmath.com/index.html

http://www.math.com/

http://spot.pcc.edu/~ssimonds/winplot
(Free videos concerning Winplot)

http://www.pearsoned.ca/school/math/math/

VIII. Recommended Evaluation

Written Notes	10%
Assignments	10%
Test(s)	30%
Final Exam *(entire course)*	50%
	100%

The overall pass mark for the course is 50%.

Coordinate Geometry, Factoring, Solving Quadratic Equations and Equations Involving Rational Expressions

Unit 1 - Coordinate Geometry: Slopes of Line Segments

Outcomes

1.1 Determine the rise and run of a line segment and then calculate the slope of the line segment.

1.1.1 Define the term *slope*.

1.1.2 Write the formula for the slope of a line segment joining $P_1 (x_1, y_1)$ and $P_2 (x_2, y_2)$.

1.1.3 Recognize that the slope of any horizontal line segment is zero.

1.1.4 Recognize that the slope of any vertical segment is not defined.

1.1.5 Recognize the difference in line segments that have a positive slope and those that have a negative slope.

Notes for Teaching and Learning

This unit deals with slopes of line segments.
Students will learn that parallel line segments have the same slope and that perpendicular line segments have slopes that are negative reciprocals of each other. The slopes of vertical and horizontal line segments are also discussed.

Assign **Prerequisites** exercises on page 10 of the *Teacher's Resource Book* .

Students have previously studied $slope = \frac{rise}{run}$.

This may be the first time that the formula , $slope = \frac{y_2 - y_1}{x_2 - x_1}$, has been used to find slope.

Students must realize that the *order* in which the *x*-coordinates are subtracted must be the same as the *order* in which the *y*-coordinates are subtracted. It does not matter which order is used.

Students should have a visual picture of slopes that are either zero, undefined, positive or negative.

Visualizing, page 165 in *Mathematics 10*, demonstrates these four slopes.

Unit 1 - Coordinate Geometry: Slopes of Line Segments

Suggestions for Assessment	Resources
Study Guide questions 1.1 to 1.5 will meet the objectives of Outcome 1.1.	*Mathematics 10*, Section 3.3, Slope of a Line Segment, pages 162 - 169 *Mathematics 10, Teacher's Resource Book*, Chapter 3, pages 10 - 13 *Mathematics 10, Independent Study Guide*, page 42
The CDLI site has an excellent interactive demonstration which examines the slope of a line segment.	www.cdli.ca, Math 1204, Unit 3, Section 04, Lesson 02

Unit 1 - Coordinate Geometry: Slopes of Line Segments

Outcomes

1.2 Identify line segments that are parallel.

1.2.1 Recognize that if two line segments are parallel then their slopes are equal.

1.2.2 Using a shortcut, solve equations of the form $\frac{a}{b} = \frac{c}{d}$.

Notes for Teaching and Learning

Assign **Prerequisites** exercises on page 15 in *Teacher's Resource Book.*

Students should be encouraged to draw diagrams for problems similar to **Examples 1** and **2**.

The **Mathematics File** demonstrates the shortcut method, cross-multiplying, to solve equations of the form $\frac{a}{b} = \frac{c}{d}$.

Unit 1 - Coordinate Geometry: Slopes of Line Segments

Suggestions for Assessment

Study Guide questions 1.6 to 1.10 will meet the objectives of Outcome 1.2.

Resources

Mathematics 10, Section 3.4, Slopes of Parallel Line Segments, pages 175 - 179, 182 and 183

Mathematics 10, Teacher's Resource Book, Chapter 3, pages 15 -19

Mathematics 10, Independent Study Guide, page 42

Unit 1 - Coordinate Geometry: Slopes of Line Segments

Outcomes

1.3 Identify line segments that are perpendicular.

1.3.1 Recognize that if two line segments are perpendicular then their slopes are negative reciprocals.

Notes for Teaching and Learning

Assign **Prerequisites** exercises on page 19 in *Teacher's Resource Book.*

The instructor should point out to students that the illustration on the bottom of page 184 in *Mathematics 10* is **not** a proof. This illustration could be repeated using general coordinates. Let point A be (x_1, y_1) and point A′ be $(-y_1, x_1)$.

It is important that students understand that the relationship between slopes of perpendicular line segments does not hold if the line segments are vertical and horizontal. These line segments are perpendicular, but their slopes are not negative reciprocals. Students should be able to explain the reason for this.

Unit 1 - Coordinate Geometry: Slopes of Line Segments

Suggestions for Assessment

Study Guide questions 1.11 to 1.13 will meet the objectives of Outcome 1.3.

Since only part of Chapter 3 was studied for this unit, the instructor should carefully read the test questions on Masters 3.3 to 3.6 before choosing the relevant material for a chapter assessment.

There are suitable review questions in *Review* and *Cumulative Review* on pages 192 to 195.

Resources

Mathematics 10, Section 3.5, Slopes of Perpendicular Line Segments, pages 184 - 189

Review, pages 192 and 193

Cumulative Review, pages 194 and 195

Mathematics 10, Teacher's Resource Book, Chapter 3, pages 19 - 22, Masters 3.3 - 3.6

Mathematics 10, Independent Study Guide, page 43

Unit 2 - Coordinate Geometry: The Straight Line

Outcomes

2.1 Graph a linear relationship from its equation.

2.1.1 Generate a table of values from an equation.

2.1.2 Use a table of values to draw a graph for any equation.

2.1.3 Given the coordinates of a point, verify whether it satisfies the equation of a line.

Notes for Teaching and Learning

This unit begins with graphing a line by first generating a table of values from an equation.

The instructor should emphasize to the student the importance of neat sketches. Graphs should be labeled and a ruler should be used to draw axes and lines.

Students will need quad paper for this unit.

Note: Assign review questions from **Prerequisites**, *Teacher's Resource Book*, Chapter 4, page 4.
The instructor should introduce and explain the terms *independent* and *dependent variable*.

Students may need some help when completing **Exercises 3**, **4**, and **5** on pages 202 and 203. These questions are similar to the hall-rental problem at the beginning of **Section 4.1.**

Suggestions for Assessment

Study Guide questions 2.1 and 2.2 will meet the objectives of Outcome 2.1.

See the *Teacher's Resource Book*, and the *Independent Study Guide* for supplementary material that can be used for practice, review or further assessment.

Resources

Mathematics 10, Section 4.1, Using an Equation to Draw a Graph, pages 198 - 204

Mathematics 10, Teacher's Resource Book, Chapter 4, pages 4 - 7

Mathematics 10, Independent Study Guide, Chapter 4, page 51

Unit 2 - Coordinate Geometry: The Straight Line

Outcomes

2.2 Graph a line when given the slope of the line and the coordinates of a point on the line.

Notes for Teaching and Learning

Students have just completed units in Chapter 3 which determined the slope of line segments and the relationship of parallel and perpendicular line segments. The concept of the slope of a *line segment* is now extended to the slope of a *line*.

Note: Assign review questions from **Prerequisites**, *Teacher's Resource Book*, Chapter 4, page 8.

The instructor may need to remind students of the slope formula, $\frac{y_2 - y_1}{x_2 - x_1} = m$.

Students may not recall that an integer can be written as a fraction with a denominator of 1. For example; $3 = \frac{3}{1}$.

When answering **Exercises 10** and **11** on page 211, geometry or algebra could be used. The instructor may need to work through a similar problem with students.

Suggestions for Assessment

Study Guide questions 2.3 to 2.5 will meet the objectives of Outcome 2.2.

Resources

Mathematics 10, Section 4.2, The Slope of a Line, pages 207 - 212

Mathematics 10, Teacher's Resource Book, Chapter 4, pages 8 - 10

Mathematics 10, Independent Study Guide, Chapter 4, page 51

Outcomes

2.3 Given the slope and *y*-intercept of a line, write its equation and draw its graph.

Notes for Teaching and Learning

Note: Assign review questions from **Prerequisites**, *Teacher's Resource Book*, Chapter 4, page 12.

Students have been assigned to use a table of values to complete **Investigation** on page 214. However, a graphing calculator could be used for this activity.

Students should be reminded to find the *y*-intercept first when graphing a line in the form of $y = mx + b$.

Students may need some guidance when doing **Exercises 10** and **11** on page 219. There is more than one way to complete these questions. However, the easiest method may be to substitute the coordinates of the given point into the given equation and solve for the unknown.

Exercises 20 and **21** require students to find necessary information from the wording of the problem. For example, if the lines intersect on the *y*-axis, we know that the *y*-intercepts are the same. Also, if the lines are perpendicular, their slopes are negative reciprocals of each other.

Suggestions for Assessment

Study Guide questions 2.6 to 2.10 will meet the objectives of Outcome 2.3.

Resources

Mathematics 10, Section 4.3, The Equation of a Line: Part 1, pages 214 - 220

Mathematics 10, Teacher's Resource Book, Chapter 4, pages 12 - 14

Mathematics 10, Independent Study Guide, Chapter 4, page 52

Unit 2 - Coordinate Geometry: The Straight Line

Outcomes

2.4 Determine the equation of a line when given different information.

2.4.1 Determine the equation of a line when given its *x*-intercept and *y*-intercept.

2.4.2 Determine the equation of a line when given its slope and the coordinates of one point on the line.

2.4.3 Determine the equation of a line when given the coordinates of two points on the line.

2.4.4 Write the equation of a line in standard form, $Ax + By + C = 0$.

Notes for Teaching and Learning

Patterns in Equations and Lines, page 221, can be done without technology. Students have been assigned questions 1 and 2 which determine the equation of a line from its *x*- and *y*-intercepts.

Note: Assign review questions from **Prerequisites**, *Teacher's Resource Book*, Chapter 4, page 16.

Example 1 on page 224 has an alternate solution. The instructor should check with students to see if they can do the second method. (It is suggested in the Study Guide.)

The slope and coordinates of the point can be substituted in the $y = mx + b$ equation and thus 'b' can be found. The point-slope form of an equation could be introduced here:

$$y - y_1 = m(x - x_1)$$

Students should know the difference between the slope *y*-intercept form, $y = mx + b$, and the standard form, $Ax + By + C = 0$, of the equation of the line.

Before students complete **Exercises 3** and **4**, page 226, they should review **Equation of a Line Property**, page 199.

Suggestions for Assessment

Study Guide questions 2.11 to 2.15 will meet the objectives of Outcome 2.4.

Resources

Mathematics 10,
Patterns in Equations and Lines, page 221
Section 4.4, The Equation of a Line: Part II,
pages 224 - 228

Mathematics 10,
Teacher's Resource Book,
Chapter 4, pages 14, 16 and 17

Mathematics 10,
Independent Study Guide
Chapter 4, pages 52 and 53

Unit 2 - Coordinate Geometry: The Straight Line

Outcomes

2.5 When given the standard form of the equation of a line, determine certain information about its graph.

2.5.1 When given the equation of a line in the form, $Ax + By + C = 0$, determine the x-intercept and y-intercept and use the intercepts to graph the line.

2.5.2 When given the equation of a line in the form, $Ax + By + C = 0$, determine its slope.

2.5.3 Graph the line $Ax + By + C = 0$ when:

i) $A = 0$ or
ii) $B = 0$ or
iii) $C = 0$.

Notes for Teaching and Learning

Note: Assign review questions from **Prerequisites**, *Teacher's Resource Book*, Chapter 4, page 18.

The instructor should ensure that students know how to find the x- and y-intercepts and slope when given the standard form of the linear equation, $Ax + By + C = 0$.

To find the y-intercept, let $x = 0$ and solve for y.

$$y = -C/B$$

To find the x-intercept, let $y = 0$ and solve for x.

$$x = -C/A$$

To find the slope, solve for y. This gives the slope y-intercept form.

$$y = \frac{-A}{B}x - \frac{C}{B}$$

Therefore the slope is $-A/B$.

Students should know that the equation for the y-axis is $x = 0$ and the equation for the x-axis is $y = 0$.

Suggestions for Assessment	Resources
Study Guide questions 2.16 to 2.18 will meet the objectives of Outcome 2.5.	*Mathematics 10*, Section 4.5, Interpreting the Equation, $Ax + By + C = 0$, pages 229 - 235
Masters 4.3 to 4.6 contain a Multiple Choice Test and a Written Test which could be used as an assessment.	*Mathematics 10, Teacher's Resource Book*, Chapter 4, pages 18 - 20, Masters 4.3 - 4.6
The following questions found in *Mathematics 10* may be helpful for assessment: ▸ **Review**, page 241, questions 1 to 15, 17, 18, (19 for a challenge) ▸ **Cumulative Review**, page 241, questions 6 to 8	*Mathematics 10, Independent Study Guide*, Chapter 4, page 53
The CDLI site has an excellent interactive lesson on solving equations. This lesson also solves equations which involve fractions. Although *Mathematics 10* doesn't address this type of equation, it is important that students become skilled in working with these equations.	www.cdli.ca, Math 1204, Unit 03, Section 02, Lesson 02

Unit 3 - Factoring Polynomials and Solving Quadratic Equations

Outcomes

3. 1 Factor trinomials of the form $x^2 + bx + c$.

Notes for Teaching and Learning

Note: **Exercises 6** and **7**, page 357, are a good review of the prerequisites required for this unit. These exercises show the importance of *pattern* when factoring.

This section emphasizes methods to use to factor trinomials of the form $x^2 + bx + c$.

The instructor should tell students to ignore any reference to algebra tiles in this unit since they will **not** be used in this course to model expanding and factoring of polynomials.

The instructor should ensure that students recall the meaning of *factor* and that they understand when a polynomial has the form $x^2 + bx + c$.

When factoring polynomials of the form $x^2 + bx + c$, students should be encouraged to find all the integer pairs with a *product* of '*c*' before they find the pair with a **sum** of '*b*'.

Omit all problems which have a binomial factor with a degree greater than 1. (**Example 3**, page 363)

Unit 3 - Factoring Polynomials and Solving Quadratic Equations

Suggestions for Assessment	Resources
Study Guide questions 3.1 to 3.3 will meet the objectives of Outcome 3.1.	*Mathematics 10*, Section 6.6, Factoring Trinomials of the Form $x^2 + bx + c$, pages 362 - 367 *Mathematics 10, Teacher's Resource Book*, Chapter 6, pages 21 - 23 *Mathematics 10, Independent Study Guide*, pages 73 - 74
The CDLI site has an interactive lesson on factoring trinomials of the form $x^2 + bx + c$.	www.cdli.ca , Math 1204, Unit 03, Section 05, Lesson 06

Unit 3 - Factoring Polynomials and Solving Quadratic Equations

Outcomes

3. 2 Factor trinomials of the form $ax^2 + bx + c$.

Notes for Teaching and Learning

Note: Assign review questions from **Prerequisites**, *Teacher's Resource Book*, page 25.

This section provides a method to factor trinomials of the form $ax^2 + bx + c$. Again, omit all references to algebra tiles.

The instructor should ensure that students know that factoring is a process which reverses the expansion of binomial products.

The instructor will have to guide students through the methods used in **Examples 1**, **2**, and **4** before students are able to work independently.

Students should be reminded to look for a common monomial factor before factoring a trinomial.

When factoring polynomials of the form $ax^2 + bx + c$, encourage students to look for all the integer pairs with a **product** of '*ac*' before choosing a pair which has a *sum* of '*b*'.

Unit 3 - Factoring Polynomials and Solving Quadratic Equations

Suggestions for Assessment	Resources
Study Guide questions 3.4 and]3.5 will meet the objectives of Outcome 3.2.	*Mathematics 10*, Section 6.7, Factoring Trinomials of the Form $ax^2 + bx + c$, pages 369 - 373 *Mathematics 10, Teacher's Resource Book*, Chapter 6, pages 25 and 26 *Mathematics 10, Independent Study Guide*, page 74
The CDLI site has an interactive lesson on factoring trinomials of the form $ax^2 + bx + c$.	www.cdli.ca, Math 1204, Unit 03, Section 05, Lesson 06

Unit 3 - Factoring Polynomials and Solving Quadratic Equations

Outcomes

3. 3 Factor a polynomial that is a difference of squares ($x^2 - y^2$).

Notes for Teaching and Learning

Note: Assign review questions from **Prerequisites**, *Teacher's Resource Book*, page 27.

This section develops a pattern for factoring a *difference of squares*.

The instructor should stress the importance of removing a common factor (if possible) first, and, after the difference of squares is factored, looking to see if one of the factors can be factored further. (See **Example 3**, page 375.)

Suggestions for Assessment

Study Guide questions 3.6 to 3.8 will meet the objectives of Outcome 3.3.

Resources

Mathematics 10, Section 6.8, Factoring a Difference of Squares, pages 374 - 379

Mathematics 10, Teacher's Resource Book, Chapter 6, pages 27 - 29

Mathematics 10, Independent Study Guide, page 74

Unit 3 - Factoring Polynomials and Solving Quadratic Equations

Outcomes

3. 4 Solve quadratic equations, using factoring when necessary.

Notes for Teaching and Learning

Note: Assign review questions from **Prerequisites**, *Teacher's Resource Book*, page 30.

In this section, students will use the factoring skills learned previously to solve quadratic equations.

Students should be directed to the difference between a *quadratic* and a *quadratic equation*.

The instructor should point out that each equation in **Example 1**, page 380, has 2 solutions. The term *roots* should be introduced at this time.

The important property stated on the bottom of page 380 should be discussed with students.

Unit 3 - Factoring Polynomials and Solving Quadratic Equations

Suggestions for Assessment

Study Guide questions 3.9 to 3.11 will meet the objectives of Outcome 3.4.

Since not all of Chapter 6 was covered in this course, the instructor should carefully choose relevant questions from the Written Test and Multiple Choice Test on Masters 6.4 to 6.6 for a unit assessment.

Resources

Mathematics 10, Section 6.9, Solving Quadratic Equations, pages 380 - 385

Mathematics 10, Teacher's Resource Book, Chapter 6, pages 30 and 31

Masters 6.4 - 6.6

Mathematics 10, Independent Study Guide, page 74

Unit 4 - Solving Equations Involving Rational Expressions

Outcomes

4.1 Solve equations involving rational expressions.

4.1.1 Define the term *rational expression*.

Notes for Teaching and Learning

Note: Assign **Prerequisites** questions, *Teacher's Resource Book*, page 16.

The instructor should look at **Example 1**, page 431, with students and discuss why the method works.

Students should be reminded that the shortcut method used in **Example 3** can only be used when a equation has only one rational expression on each side.

The textbook looks for values of x where the equation may not be defined. Students need to be encouraged to do this.

The textbook does not check the solution found. This is not a good idea! The instructor should advise students to develop the habit of always checking the answer.

The CDLI site has a couple of interactive lessons which deal with solving equations which have rational expressions.

Unit 4 - Solving Equations Involving Rational Expressions

Suggestions for Assessment

Study Guide questions 4.1 to 4.3 will meet the objectives of Outcome 4.1.

Resources

Mathematics 10, Section 7.6, Solving Equations Involving Rational Expressions, pages 431 - 435

Mathematics 10, Teacher's Resource Book, Chapter 7, pages 16 and 17

Mathematics 10, Independent Study Guide, page 83

www.cdli.ca, Math 1204, Unit 03, Section 03, Lessons 02 and 03