ALBERTA DISTANCE LEARNING CENTRE
Mathematics 10C
MAT1791
Workbook 8.2

Student's Questions and Comments

FOR STUDENT USE ONLY
Student Name: _____

FOR ADLC USE ONLY
Assigned to _____
Marked by _____
Date received _____

Summary

	Marks Earned	Total Possible Marks	Percent
8.2 Practice – III	**I have _____ /8 and _____ %.**		
Lesson 8.2 Assignment		11	

Teacher's Comments:

_____

Teacher's Signature

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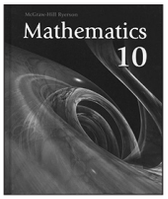

Mathematics 10

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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 a in the table provided at the end of each *Practice* section.

Lesson 8.2: Solving Systems of Linear Equations by Substitution

Complete the *Practice* below. When you have completed all the questions for *Lesson 8.2 Practice – III* 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 – III

1. Solve and verify each of the following systems of linear equations.

   a. $y = 2x$ and $3x + y = -5$

   b. $x + 2y = 2$ and $x - 2y = 6$

c. $y = \frac{1}{2}x + 1$ and $y = -\frac{3}{2}x - 1$

d. $6a - 2b - 8 = 0$ and $7b - 14a + 26 = 0$

2. Jakub attempted to solve the system of equations $5x + y + 20 = 0$ and $2x + 2y + 9 = 0$. His work is shown.

$$5x + y + 20 = 0$$
$$y = -5x - 20$$

$$5x + (-5x - 20) + 20 = 0$$
$$0 = 0$$

Uneasy about the result, Jakub graphed the relations and found the two lines intersect at (–3, –6).

a. What error did Jakub make?

b. Suggest to Jakub a general strategy that he can always use to solve linear systems of equations by substitution.

3. a. Explain how a solution to a system of linear equations can be verified algebraically.

b. Explain how a solution to a system of linear equations can be verified graphically.

c. Describe an advantage to verifying a solution using each method.

4. Glen and Warren competed in a cycling race where participants began the race at different locations, based on their previous cycling performances. Glen's position t hours after the race began is represented by $d = 32t + 14$ and Warren's position is represented by .

   a. If the race was 100 km long, what are the domain and range of Glen's relation?

   b. Solve the system of equations.

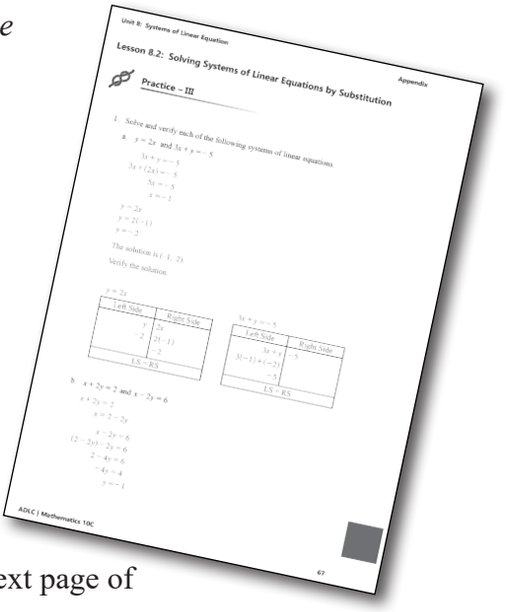
   c. Explain the meaning of the solution.

Mark your work for *Lesson 8.2 Practice – III* 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 8.2 Practice – III* is _____.

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


Unit 8: Systems of Linear Equation

Appendix

Lesson 8.2: Solving Systems of Linear Equations by Substitution

Practice – III

1. Solve and verify each of the following systems of linear equations.

a. $y = 2x$ and $3x + y = -5$

$3x + y = -5$

$3x + (2x) = -5$

$5x = -5$

$x = -1$

$y = 2x$

$y = 2(-1)$

$y = -2$

The solution is $(-1, -2)$

Verify the solution.

$y = 2x$

Left Side	Right Side
-2	$2x$
	$2(-1)$
	-2
LS = RS	

$3x + y = -5$

Left Side	Right Side
$3x + y$	-5
$3(-1) + (-2)$	
-5	
LS = RS	

b. $x + 2y = 2$, and $x - 2y = 6$

$x + 2y = 2$

$x = 2 - 2y$

$x - 2y = 6$

$(2 - 2y) - 2y = 6$

$2 - 4y = 6$

$-4y = 4$

$y = -1$

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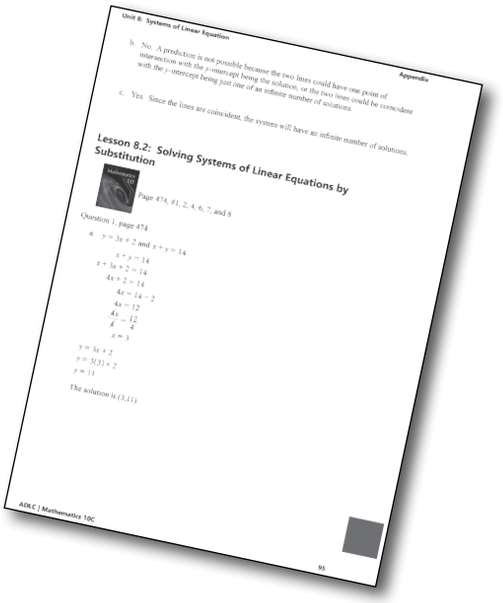
Question Number	Got it!	Almost there…	Need to retry or ask for help.
1			
2			
3			
4			

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 474, #1, 2, 4, 6, 7, and 8

Check your work in *Enhance Your Understanding*.


Unit 8: Systems of Linear Equation

Appendix

b. No. A prediction is not possible because the two lines could have one point of intersection with the *y*-intercept being the solution, or the two lines could be coincident with the *y*-intercept being just one of an infinite number of solutions.

c. Yes. Since the lines are coincident, the systems will have an infinite number of solutions.

Lesson 8.2: Solving Systems of Linear Equations by Substitution

Page 474, #1, 2, 4, 6, 7, and 8

Question 1, page 474

a. $y = 3x + 2$ and $x + y = 14$

$x + y = 14$

$x + 3x + 2 = 14$

$4x + 2 = 14$

$4x = 14 - 2$

$4x = 12$

$\frac{4x}{4} = \frac{12}{4}$

$x = 3$

$y = 3x + 2$

$y = 3(3) + 2$

$y = 11$

The solution is $(3, 11)$

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Lesson 8.2: Solving Systems of Linear Equations by Substitution

Explore Your Understanding Assignment

1. Solve and verify each of the following systems of linear equations.

(3) a. $5x - 2y = -6$ and $2x - y = 1$

(3) b. $2x + 3y = 432$ and $5x - 2y = 16$

2. Lena thinks she has found a shortcut for solving some linear systems. Her solution to the system $4y = 3x + 7$ and $9x + 4y - 139 = 0$ is shown.

$$\begin{aligned} 9x + 4y - 139 &= 0 \\ 9x + 3x + 7 - 139 &= 0 \\ 12x - 132 &= 0 \\ 12x &= 132 \\ x &= 11 \end{aligned}$$

$$\begin{aligned} 4y &= 3x + 7 \\ 4y &= 3(11) + 7 \\ 4y &= 40 \\ y &= 10 \end{aligned}$$

(1) a. Is Lena's method correct?

(1) b. If Lena's method is correct, explain it. If it is incorrect, describe her error.

3. The numbers x and y have a sum of 1 and a difference of 11.

(1) a. Write a system of equations to represent this information.

(2) b. Solve the system of equations to determine the numbers.

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