THE ERINDALE ACADEMY

COURSE NAME: MPM2D – Principles of Mathematics

Unit 1 – System of Linear Equations (Assignment #3: Advanced Topics from 1.1 to 1.7)

Teacher: Antonio Pietrangelo

Time: as needed.

Pages: 10

Student's Name:
Student#:

Due Date: Monday, September 13th, 23:30pm (EST)

Mark: /100

Categories	Knowledge/ Understanding	Thinking/Inquiry/ Problem Solving	Communication	Application
Symbol	K/U	T/I	C	A
Weight	25 %	25 %	25 %	25 %
Level				

Overall Expectations:

All Overall Expectations as listed in the Ontario Curriculum course outline for your specific course.

Overall Expectations:

1. System of Linear Equations

Specific Expectations:

1.1 Representing Linear Systems.
1.2 Solving Linear Equations.
1.3 Graphically Solving Linear Systems
1.4 Solving Linear Systems: Substitution
1.5 Equivalent Linear Systems
1.6 Solving Linear Systems: Elimination
1.7 Exploring Linear Systems

Key Terms:

1. Slopes of Lines
2. Parallel lines
3. Collinear Lines

4. Point of intersection
5. Algebraic expressions
6. Solving linear equations
7. Increasing / decreasing functions
8. Equivalent equations
9. Equivalent Liner Systems
10. Process of Substitution
11. Process of Elimination

Rubrics:

Category	Level R (0 – 49%)	Level 1 (50-59%)	Level 2 (60-69%)	Level 3 (70-79%)	Level 4 (80-100%)	Level/ Mark
Knowledge – Understanding of: **(Unit/Section - 1.1 to 1.7)**	demonstrates insufficient understanding	demonstrates limited understanding	demonstrates some understanding	demonstrates considerable understanding	demonstrates thorough understanding	
					Individual: **Assigned:**	____

Category	Level R (0 – 49%)	Level 1 (50-59%)	Level 2 (60-69%)	Level 3 (70-79%)	Level 4 (80-100%)	Level/ Mark
Thinking and Inquiry (What if scenarios) of **(Unit/Section - 1.1 to 1.7)**	demonstrates insufficient ability to apply different scenarios	demonstrates limited ability to apply different scenarios	demonstrates some ability to apply different scenarios	demonstrates considerable ability to apply different scenarios	demonstrates through ability to apply different scenarios	
					Individual:	_____

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Category	Level R (0 – 49%	Level 1 (50-59%)	Level 2 (60-69%)	Level 3 (70-79%)	Level 4 (80-100%)	Level/ Mark
Communication **Communicates effectively with the use of (Unit/Section: 1.1 to 1.7)**	demonstrates **insufficient** ability to communicate effectively	demonstrates **limited** ability to communicate effectively	demonstrates **some** ability to communicate effectively	demonstrates **considerable** ability to communicate effectively	demonstrates **through** ability to communicate effectively	
					Individual:	_____

Category	Level R (0 – 49%	Level 1 (50-59%)	Level 2 (60-69%)	Level 3 (70-79%)	Level 4 (80-100%)	Level/ Mark
Application: Demonstrates the ability to implement standard industry conventions in written software with use of: **(Unit/Section: 1.1 to 1.7)**	demonstrates **insufficient ability**	demonstrates **limited ability**	demonstrates **some ability**	demonstrates **considerable ability**	demonstrates **thorough ability**	
					Individual:	_____

PART A: KNOWLEDGE AND UNDERSTANDING (K/U) – 25%

2 Marks Per Question

Instructions:

Question 1: The equation y= -x + 3 is an increasing function? (True or False)

Question 2: These two equations are collinear equations: y=2x + 1, 2y=4x +2? (True or False)

Question 3: point (2, 18) lies on the equation: $y = \frac{1}{2}x - 7$? (True or False)

Question 4: A line that has two endpoints is called a line segment? (True or False)

Question 5: The equation 3x + 7y = 2 has a slope of 3? (True or False)

PART B: THINKING AND INQUIRY (T/I) – 25 %

5 Marks Per Question

Show your work:

Question 1: Find the point of intersection.

$2x = y + 5$
$3x + y = -9$

Question 2: **Find the point of intersection.**

$a + b + 6 = 0$
$2a - b - 3 = 0$

PART C: COMMUNICATION (C) – 25%

10 Marks Per Question

Question 1: Explain what type of linear systems are these two pairs of equations.

Pair 1:	Pair 2:
$y = x - 1$ $y = -\frac{1}{2}x + 2$	$2x - 2y - 2 = 0$ $2y + x = 4$

Step 1: Graph both pairs on separate graphs

Step 2: What is the point of intersection of each pair of equations

Step 3: What is your conclusion and observation of these two pairs of equations.

Student Response:

PART D: APPLICATION (A) – 25%

10 Marks Per Question

Question 1:

Solve the linear equations:

1. **10x + 4y = -1**
2. **8x – 2y = 7**

Use all three methods to solve the linear equations above:

1. **The process of substitution.**
2. **The process of elimination.**
3. **Graph both equations and find the point of intersection.**

In addition, once the point of the intersection is determined if any, use the point of intersection point (x, y) = (x1, y1). Substitute point (x1, y1) into both original equations to find the point of intersection. Use L.S. = R.S. methodology to prove that the point (x1, y1) solves the linear equations.

Graph both linear equations using the graphing calculator.