THE ERINDALE ACADEMY

COURSE NAME: MPM2D – Principles of Mathematics	
Accumulative Activity: 11 **AS Learning: Topics: (1.1 to 6.6)** **Teacher: Antonio Pietrangelo** **Time: Throughout Course** **Pages: 11, plus**	**Student's Name:** **Student#:** **Due Date: Thursday, February 15th, 2024 2:30 pm 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	N/A	N/A	N/A	

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Overall Expectations:

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

Specific Expectations:

Chapter/Unit 1 - Systems of Linear Equations

1.1 Representing Linear Relations
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

Chapter 2: Analytic Geometry: Line Segments and Circles, and Advanced Shapes

2.1 Midpoint of a Line Segment
2.2 Length of a Line Segment
2.3 Equation of a Circle
2.4 Classifying Figures on a Coordinate Grid
2.5 Verifying Properties of Geometric Figures
2.6 Exploring Properties of Geometric Figures
2.7 Using Coordinates to Solve Problems

Chapter 3: Graphs of Quadratic

3.1 Exploring Quadratic Relations
3.2 Properties of Graphs of Quadratic Relations
3.3 Factored Form of a Quadratic Relation
3.4 Expanding Quadratic Expressions
3.5 Quadratic Models Using Factored Form
3.6 Exploring Quadratic and Exponential Graphs

Chapter 4: Factoring Algebraic

4.1 Common Factors in Polynomials
4.2 Exploring the Factorization of Trinomials
4.3 Factoring Quadratics: x^2 + bx + c, where (a = 1)
4.4 Factoring Quadratics: x^2 + bx + c, where ($a \neq 1$)
4.5 Factoring Quadratics: Special Cases
4.6 Reasoning about Factoring Polynomials

Chapter 5: Applying Quadratic

5.1 Stretching/Reflecting Quadratic Relations
5.2 Exploring Translations of Quadratic Relations
5.3 Graphing Quadratics in Vertex Form
5.4 Quadratic Models Using Vertex Form

5.5 Solving Problems Using Quadratic Relations
5.6 Connecting Standard and Vertex Forms

Chapter 6: Quadratic Equations
6.1 Solving Quadratic Equations
6.2 Exploring the Creation of Perfect Squares
6.3 Completing the Square
6.4 The Quadratic Formula
6.5 Interpreting Quadratic Equation Roots
6.6 Solving Problems Using Quadratic Models

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 **(Specific Expectations: 1.1 to 6.6 - Accumulative)**	**demonstrates insufficient understanding**	demonstrates limited understanding	demonstrates some understanding	demonstrates considerable understanding	demonstrates thorough understanding	
				Individual: Mark:		

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: **(Specific Expectations: 1.1 to 6.6 - Accumulative)**	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: Mark:		

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** **(Specific Expectations: 1.1 to 6.6 - Accumulative)**	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: Mark:		

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 apply mathematical principles to real world situations. **(Specific Expectations: 1.1 to 6.6 - Accumulative)**	demonstrates **insufficient ability**	demonstrates **limited ability**	demonstrates **some ability**	demonstrates **considerable ability**	demonstrates **thorough ability**	
				Individual: Mark:		

PART A: KNOWLEDGE AND UNDERSTANDING (K/U) – 25% - 100%,
PART B: THINKING AND INQUIRY (T/I) - 25% to 100%, if implemented
PART C: COMMUNICATION (C) – 25 to 100%, if implemented
PART D: APPLICATION (A) – 25% to 100%, if implemented

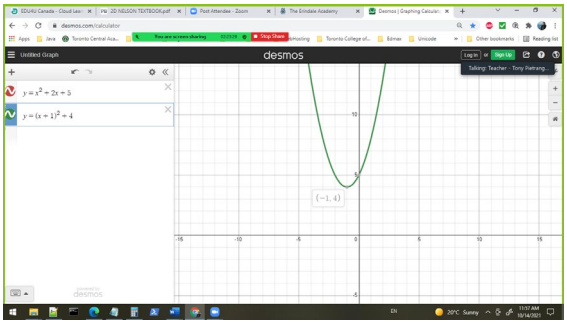
Each activity will be out of 10 marks, and can be an assessment of one or more of PART A through D. The percentages will be adjusted depending on what sections have been implemented.

PART D: APPLICATION (A) – 100%

Activity 11: Factor these quadratic equations of the form $y=ax^2+bx+c$, where $a \neq 0$ by converting the equation into vertex form $y = a(x – h)^2 + k$, where $a \neq 0$

1. Utilize the process of completing the square
2. Show the details of your work.
3. Graph the quadratic equation

See example below for $x2 +2x + 5$:

Standard form $y = ax^2 + bx + c$	Vertex Form $y = a(x – h)^2 + k$
Question 1: Rewrite equations into the vertex form.	
$y = x^2 +2x + 5$ Observation: a = 1 $y = x^2 +2x + 5$ $y = x^2 +2x + 1^2 – 1^2 + 5$ $y = (x^2 +2x + 1^2) – 1^2 + 5$ $y = (x + 1)^2 + 5 – 1$ $y = (x + 1)^2 + 4$	$y = (x + 1)^2 + 4$ vertex(x, y) = (h, k) = (-1, 4) 
$y = x^2 + 4x + 7$	
$y = x^2 + 6x + 3$	

Question 2: Determine the value of c, to complete the square.	
$y = x^2 + 6x + c$	
$y = x^2 + 14x + c$	
$y = x^2 - 12x + c$	
$y = x^2 - 10x + c$	
$y = x^2 + 2x + c$	
$y = x^2 - 80x + c$	
Question 3: Rewrite the equations in the form of: $y=a(x – h)^2 + k$	
$y = x^2 + 6x - 1$	
$y = x^2 + 2x + 7$	
$y = x^2 + 10x + 20$	
$y = x^2 + 2x - 1$	

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THANK YOU!!!