COURSE NAME: MPM2D – Principles of Mathematics	
Unit 4_to_6: **OF Learning: Assignment_03_B** **Topics: (4.1 to 6.6)** **Factoring Quadratics Equations:** **All techniques.** **Teacher: Antonio Pietrangelo**	**Student's Name:** **Student#:**
Time: Based on Due Date	**Due Date: Friday, December 13th, 2024 @ 2:30 pm EST (Toronto Time)**
Pages: 13	**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:

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

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Specific Expectations:

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

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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: 4.1 to 6.6)**	**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: 4.1 to 6.6)**	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: 4.1 to 6.6)**	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 using quadratic equations, graphing and using factoring techniques obtain critical parabolic information. **(Specific Expectations: 4.1 to 6.6)**	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%

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: Roots and solutions have the same meaning for a parabola? (True or False)

Question 4: A quadratic equation is any equation that contains a polynomial in one variable whose degree is 2? (True or False)

Question 5: There are two solutions to the quadratic equation if the Discriminant is less than zero? (True or False)

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

> **10 Marks Per Question**

Instructions:

For each quadratic relation, state:

  a.   **Graph the polynomials below between x = [-10 to 10].**

  b.   **the equation of the axis of symmetry**

  c.   **the coordinates of the vertex**

  d.   **the y-intercept**

  e.   **the zeros**

  f.   **the maximum or minimum value**

Question 1: Factor this polynomial and complete as per above instructions:

$X^2 + 3x + 2$

Question 2: Factor this polynomial and complete as per above instructions:

$X^2 + 11x + 24$

PART C: COMMUNICATION (C) – 25%

> **10 Marks Per Question**

Question 1: Explain each variable in the quadratic formula in relation or formula below:

$y = ax^2 + bx + c$

The roots or zeros	Line of Symmetry
$x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	$x = \dfrac{-b}{2a}$

1. **Discuss or explain when roots exist and don't exist?**
2. **Is there a line of symmetry?**

PART D: APPLICATION (A) – 25%

10 Marks Per Question

Instructions:

For each quadratic relation, state:

    a.   **Graph the polynomials below between x = [-10 to 10].**

    b.   **the equation of the axis of symmetry**

    c.   **the coordinates of the vertex**

    d.   **the y-intercept**

    e.   **the zeros**

    f.   **the maximum or minimum value**

Question 1: Factor and use completing the square of the equation into its vertex form $y = a(x – h)^2 + k$. Complete the instructions above.

$y = x^2 + 2x + 5$

Attach all graph here.

THE END

THANK YOU!!!