**LEARNING GOALS**

**By the end of today’s lesson I will be able to:**

1. Understand what a system of equations is
2. Understand the three possible types of solutions to a Linear/Quadratic System
3. Solve for and find the solutions to a Linear/Quadratic System

Thinking back to Grade 9 math, we learned about \_\_\_\_\_\_\_\_\_\_ of linear equations. We were considering \_\_\_\_\_\_ or more lines at the same time.

We could have \_\_\_\_\_\_\_\_ Solution, \_\_\_\_\_\_\_\_ Solutions or \_\_\_\_\_\_ Solutions

Now we are going to consider Linear/Quadratic systems. This means we will be looking at the graph of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and of a \_\_\_\_\_\_\_\_\_\_\_\_ at the \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_.

There are \_\_\_\_\_\_ possible types of solutions to a Linear/Quadratic system :

1) 2) 3)



EXAMPLE 1

1. Quadratic Equation $y=2x^{2}+7x-4$
2. Linear Equation $x+y+12=0$

Finding the parabola’s vertex: **4 [K]** Finding x- and y- intercepts of the line:  **2 [K]**

Find the parabola’s x-intercepts: **3 [K]** Finding point(s) o f intersection (if any) of the

 Quadratic and linear functions: **5 [K]**

Analysis of Parabola **8 [K]**

Direction of Opening \_\_\_\_\_\_\_\_\_\_\_\_\_

y-intercept \_\_\_\_\_\_\_\_\_\_\_\_\_\_

MAX MIN value of y is \_\_\_\_\_\_\_\_\_\_\_\_\_\_

And occurs when x is \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Equation of the axis
 of symmetry \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Draw a large sketch of the parabola and the line on the graph below. Label the vertex of the parabola, ALL intercepts and any point(s) of intersection. **7 [A] 3[C]**

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EXAMPLE 2

1. Quadratic Equation $y=-2x^{2}-4x+6$
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Finding the parabola’s vertex: **4 [K]** Finding x- and y- intercepts of the line:  **2 [K]**

Find the parabola’s x-intercepts: **3 [K]** Finding point(s) o f intersection (if any) of the

 Quadratic and linear functions: **5 [K]**

Analysis of Parabola **8 [K]**

Direction of Opening \_\_\_\_\_\_\_\_\_\_\_\_\_

y-intercept \_\_\_\_\_\_\_\_\_\_\_\_\_\_

MAX MIN value of y is \_\_\_\_\_\_\_\_\_\_\_\_\_\_

And occurs when x is \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Equation of the axis
 of symmetry \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Draw a large sketch of the parabola and the line on the graph below. Label the vertex of the parabola, ALL intercepts and any point(s) of intersection. **7 [A] 3[C]**

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HW p.198 4ac, 7 REVIEW MATERIAL ON P.202, 204