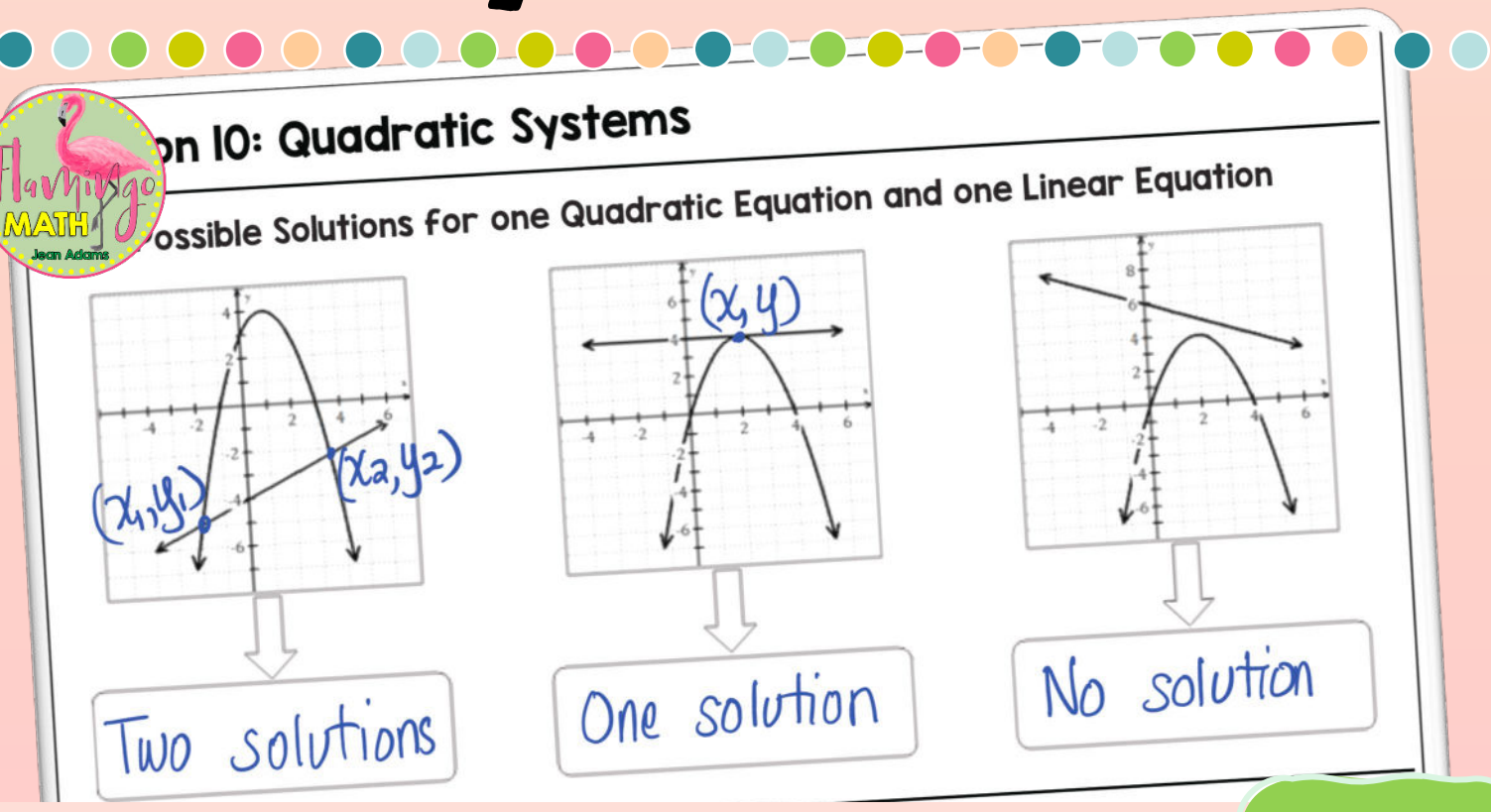
Algebra 2 Honors

Quadratic Systems



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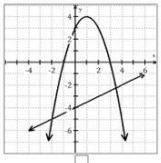
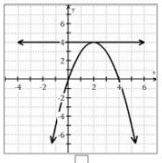
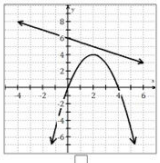
Lesson 10: Quadratic Systems

Possible Solutions for one Quadratic Equation and one Linear Equation

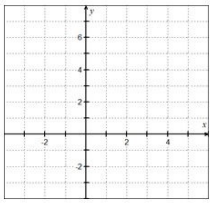






Solve a Linear-Quadratic System by Graphing

EX#1: Solve. $\begin{cases} y = x^2 - 5x + 4 \\ y = x - 1 \end{cases}$



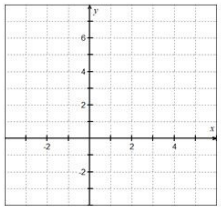
Solving by Substitution

EX #2: Solve by substitution. $\begin{cases} y = -x^2 - 3x + 10 \\ y = x + 5 \end{cases}$

EX #3: Solve by substitution. $\begin{cases} y = x^2 - 4x + 5 \\ y = -x^2 + 5 \end{cases}$

EX #4: Solve by using the **INTERSECT** feature on a graphing calculator. Round your answer to two decimals, and sketch below.

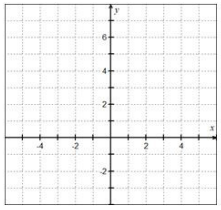
$\begin{cases} y = x^2 - 5x + 2 \\ y = -x^2 + 4 \end{cases}$



Solving a Quadratic System of Inequalities

EX #5: Find the solution of the system of inequalities.

$\begin{cases} y \leq -x^2 - 4x + 3 \\ y > x^2 + 3 \end{cases}$



A Challenge for You . . .

EX #6: Solve by substitution. $\begin{cases} y - 2x = x + 5 \\ y + 1 = x^2 + 5x + 3 \end{cases}$

NOTES

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Name _____ Date _____

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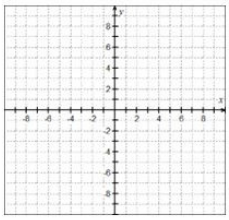
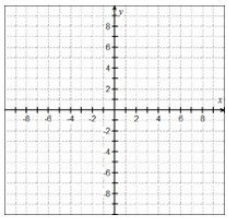
Quadratic Systems Practice

Problems 1 – 4, solve each system by graphing.

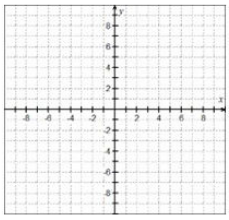
1. $\begin{cases} y = x^2 + 2x - 3 \\ y = 2x + 1 \end{cases}$



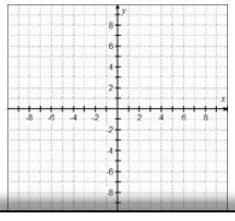
2. $\begin{cases} y = -x^2 + 4x + 2 \\ y = -x + 2 \end{cases}$



3. $\begin{cases} y = -x^2 + 3x + 2 \\ y = 3x + 2 \end{cases}$



4. $\begin{cases} y = -x^2 - 2x + 8 \\ y = -2x + 4 \end{cases}$



Problems 5 – 10, solve each system by substitution.

5. $\begin{cases} y = x^2 - 2x - 2 \\ y = -3x + 4 \end{cases}$

6. $\begin{cases} y = x^2 \\ x + y \end{cases}$

7. $\begin{cases} y = 2x^2 - 5x + 6 \\ y = 3x - 2 \end{cases}$

8. $\begin{cases} y = 3x^2 + 2x - 1 \\ x + y = 5 \end{cases}$

9. $\begin{cases} y = x^2 - 3x - 4 \\ y = -x^2 + x + 2 \end{cases}$

10. $\begin{cases} y = 2x^2 + x - 5 \\ y = -x^2 - 2x - 5 \end{cases}$

Problems 11 – 12, solve each system by graphing.

11. $\begin{cases} y > x^2 - 4x \\ y \leq 3 - x^2 \end{cases}$

12. $\begin{cases} y \geq x^2 - 6x + 5 \\ y \leq 6 + x - x^2 \end{cases}$

Practice Sets

Lesson Warm-Ups

Name _____ Date _____ Period _____

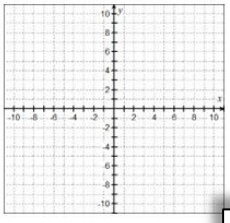
Lesson 4.10: Quadratic Systems **Warm-Up # 1**

1. Solve by substitution.

$$\begin{cases} y = x^2 - 5x + 7 \\ y = 2x + 1 \end{cases}$$

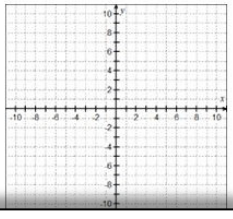
2. Solve by graphing.

$$\begin{cases} y = x^2 - 2x - 3 \\ y = 2x - 3 \end{cases}$$



3. Find the solution of the system of inequalities.

$$\begin{cases} y > x^2 - 4x - 4 \\ y < -x^2 + 4x + 4 \end{cases}$$



Name _____ Date _____

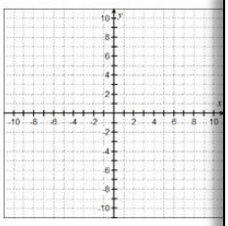
Lesson 4.10: Quadratic Systems

1. Solve by substitution.

$$\begin{cases} y = x^2 + 5x - 2 \\ y = 3x - 2 \end{cases}$$

2. Solve by graphing.

$$\begin{cases} y = -(x-2)^2 + 5 \\ y = 5 \end{cases}$$



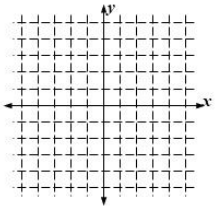
4.10 Quadratic Systems **Form A**

Name _____

Date _____ Period _____

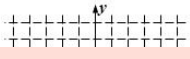
1. Solve by substitution: $\begin{cases} y = x + 3 \\ y = -x^2 + 2x + 15 \end{cases}$

2. Solve by graphing. $\begin{cases} y = x + 1 \\ y = x^2 + 2x - 1 \end{cases}$



3. Find the solution of the system of inequalities

$$\begin{cases} y \leq -x^2 + 2 \\ y > (x+1)^2 - 3 \end{cases}$$



Grade:

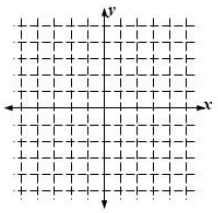
4.10 Quadratic Systems **Form B**

Name _____

Date _____ Period _____

1. Solve by substitution: $\begin{cases} y = 3x - 8 \\ y = -x^2 + 6x + 2 \end{cases}$

2. Solve by graphing. $\begin{cases} y = x - 2 \\ y = x^2 - 2x - 2 \end{cases}$



3. Find the solution of the system of inequalities

$$\begin{cases} y \leq -x^2 + 3 \\ y > (x+1)^2 - 2 \end{cases}$$



Grade:

Daily Lesson Quiz