Essential Question: How do we solve a quadratic-linear system?
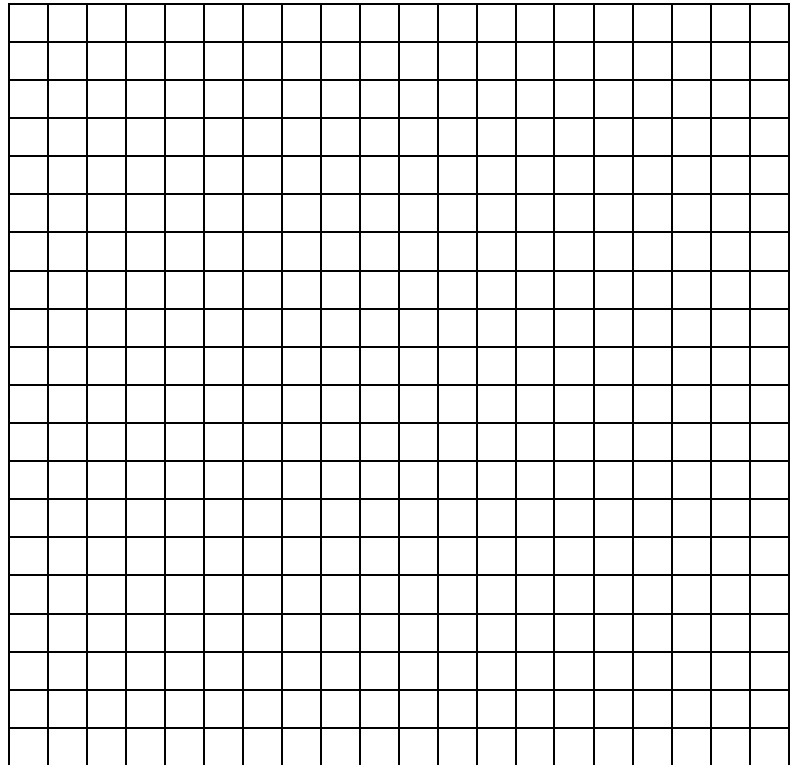
Do Now:

A linear quadratic system contains a linear equation and a quadratic equation: $\begin{cases} y = mx + b \\ y = ax^2 + bx + c \end{cases}$

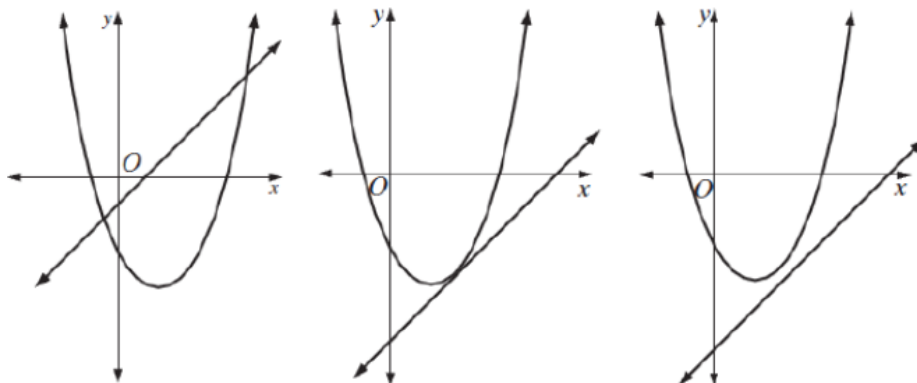**Graph the system of equations and find the common solution(s).**

$y = -x^2 + 2x + 4$

$x + y = 4$

How many solutions are possible when solving a linear-quadratic system?

▪ The solution(s) to a system of equations are the coordinates where the equations _____.

▪ In a Quadratic-Linear system, there could be _____, _____ or _____ solutions.

Solving a Linear Quadratic System Algebraically
- Solve for y in the linear equation
- Substitute the expression into the quadratic equation and solve for x
- Find y by substituting the value for x into the linear equation
- Check solutions with both equations

1. $y = x^2 - x - 6$

   $2y + 4 = 4x$

2. $y = x^2 + 4x + 3$

   $2x - y = -6$

3. $y = 5 - x^2$

   $y - 3 = x$