U2D10 MCR 3UI **Systems of Equations involving Quadratics**

** You will need separate paper for this lesson.

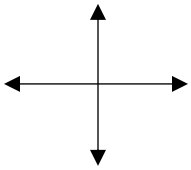
Warm Up

Determine the solution to the linear system: $2x - y = 14$
$5y = x + 11$

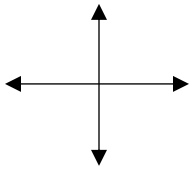
Systems of Equations

To solve a system of equations, we can use substitution (or elimination) to determine all points where the parabola intersects the line. (i.e. points of intersection)

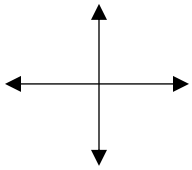
There are 3 cases:



Two solutions
- two _____ roots
- discriminant

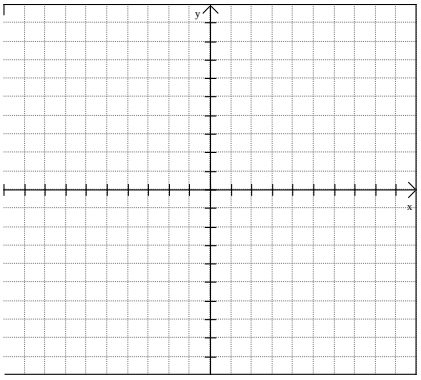


One solution
- two _____ roots
- discriminant



No solution
- _____ roots
- discriminant

Solve the following systems of Equations: Check the first one by graphing.



a) $f(x) = x^2 - 6x + 9$
$g(x) = x - 1$

b) $y = -x^2 + 4x + 2$
$2x + y - 7 = 0$

c) $y = 2x^2 + 12x + 13$
$2x - 3y - 6 = 0$

d) $x + 3f(x) = 15$
$g(x) = -x^2 + 6x - 7$