# 1.2: Solving Systems of non-linear equations by graphing

→ solving 2 or more equations at the same time

→ Graphing
- get equations into y=
- graph on calculator
- answer = point(s) of intersection
- write answer as a Point → (x, y)

- Ex 1) $x+y=2$
$y=x^2-4x+4$

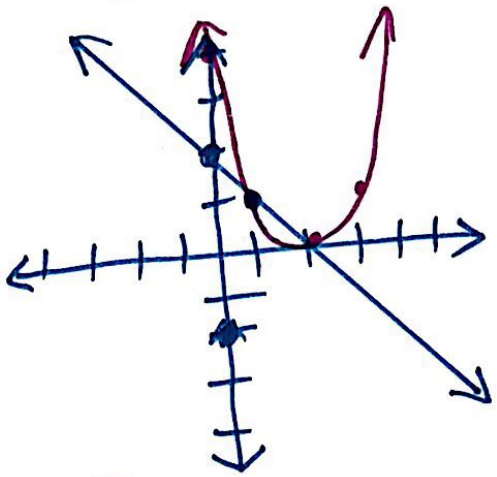
$-x \quad -x$

$y=2$
$-x$

$y=-x+2$

$(1,1), (2,0)$

Point of Intersection
→ [2nd], [trace], [5]
→ Enter 3x



- Ex2) $2x+y=-5$
$-x^2-6x+y=7$

$-2x \quad -2x$

$y=-2x-5$

$-x^2 \quad -6x$
$+x^2 \quad +6x$

$y=7$
$+x^2+6x$

$y=x^2+6x+7$

$(-6,7), (-2,-1)$

you try:

1) $3x-y=5$
$2x+5y=-8$

$\rightarrow$ $y=3x-5$

$y=\frac{-2x-8}{5}$

$3x-y=5$
$-3x \quad -3x$

$\frac{-1y}{-1} = \frac{-3x+5}{-1}$

$y=3x-5$

$(1,-2)$

2) ~~$x=y+2$~~ $x=y+2$
$-2 \quad -2$

$x-y=2$
$-2+y \quad -2+y$

$y=x-2$

$3x-3y=6$
$-3x \quad -3x$

$\frac{-3y}{-3} = \frac{-3x+6}{-3}$

$y=x-2$

infinite solutions

3) $3x+y=4$
$6x+2y=7$

no solution!