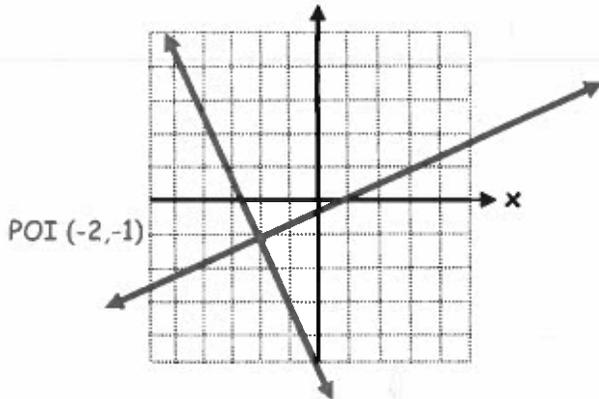


Solving by Graphing

- To solve a system of equations by graphing we need to locate the point of intersection (POI).
i.e.



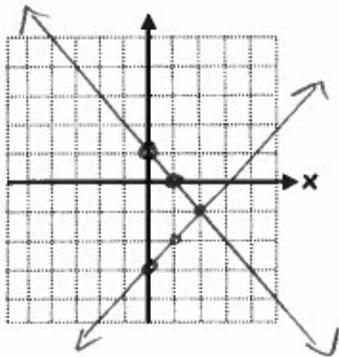
The POI is the single point where the two lines cross. It is where both equations are equal.

- When graphing the system, use the most appropriate method (table, slope-intercept, xy-intercepts).

Ex/ Solve the following systems by graphing.

a) $y = x - 3$
 $y = 1 - x$

\therefore POI (2, -1)

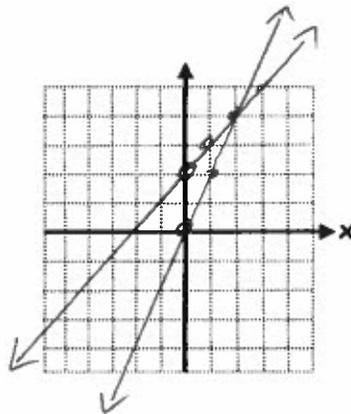


$y = \frac{1}{1}x - 3$
slope = $\frac{\text{up } 1}{\text{right } 1}$
y-int

$y = 1 - 1x$
y-int
slope = $\frac{\text{down } 1}{\text{right } 1}$

b) $y = x + 2$
 $y = 2x$

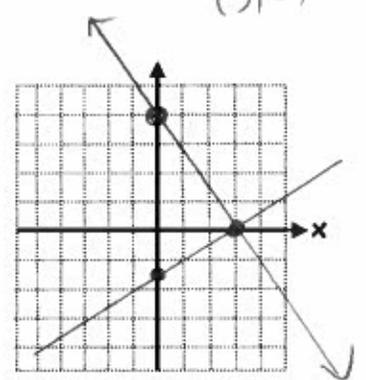
y-int of zero



\therefore POI (2, 4)

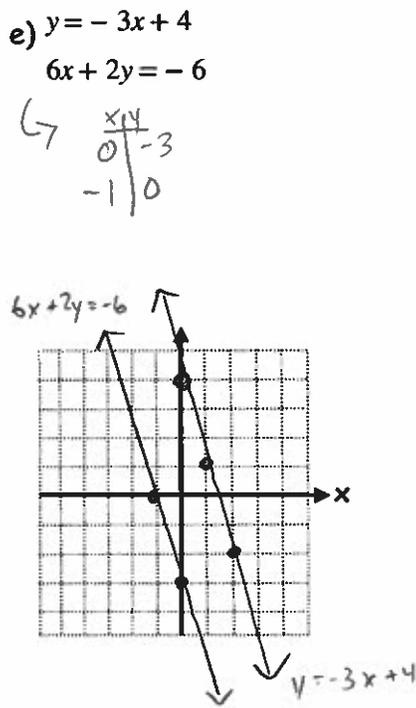
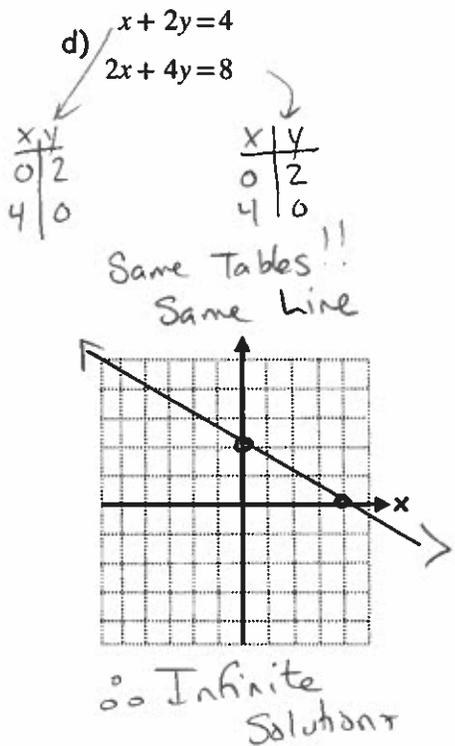
c) $4x + 3y = 12$
 $x - 2y = 3$

\therefore POI (3, 0)



$4x + 3y = 12$
 $4x = 12 \rightarrow x = 3$
 $3y = 12$
 $y = 4$

$x - 2y = 3$
 $x = 3 \rightarrow -2y = 3$
 $y = -1.5$



To check whether a POI is in fact the solution to a system, the coordinates of the POI should be substituted into both equations. If LS = RS for both, the point is the solution.

Ex/ Determine if (4,2) is the solution to the following systems.

a) $x + y = 6$
 $2x - y = 6$

sub in $(4, 2)$

$x + y = 6$	$2x - y = 6$
$4 + 2 = 6$	$2(4) - 2 = 6$
$6 = 6$	$8 - 2 = 6$
✓	$6 = 6$
	✓

Both equations worked
 so it is the solution

b) $3x - 2y = 8$
 $x - y = -2$

$3x - 2y = 8$	$x - y = -2$
$3(4) - 2(2) = 8$	$4 - 2 = -2$
$12 - 4 = 8$	$2 = -2$
$8 = 8$	✗
✓	

Did not work in both
 so it is not the solution