M10 - 8.2 - Point on Line Notes

Is $(1,2)$ *a point on the line?*

$y = x + 1$ $\quad (1,2)$ $\quad (x, y)$

Identify x *and* y
Substitute for x *and* y
Solve

$y = x + 1$
$(2) = (1) + 1$
$2 = 2$ ✓

If it works it's a Point on the Line

Is $(1,2)$ *a point on the line?*

$y = -x + 3$ $\quad (1,2)$ $\quad (x, y)$

$y = -x + 3$
$(2) = -(1) + 3$
$2 = 2$ ✓

If it works it's a Point on the Line

x	y
1	2

$(1,2)$

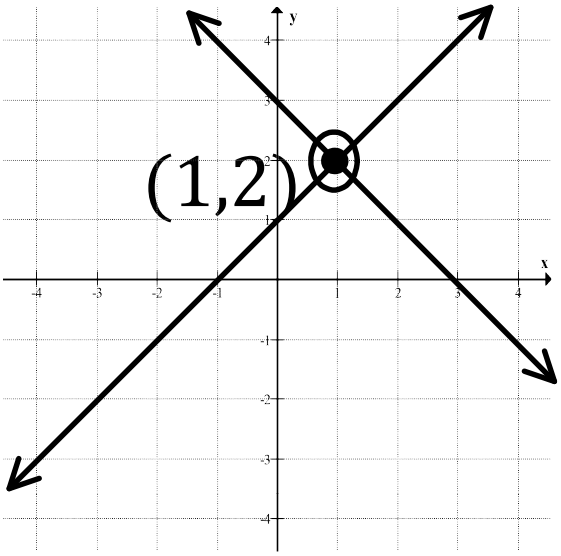
If it's is on both lines it must be the Intersection!

x	y
1	2

$(1,2)$

Graph both Lines:
Find Intersection

$y = mx + b$



$y = -x + 3$

$y = x + 1$

Both to $y = mx + b$
Algebra
$-x$ to Both Sides

$x + y = 3$
$-x \qquad -x$

$y = -x + 3$

Is $(1,3)$ *a point on the line?*

$y = x + 1$ $\quad (1,2)$ $\quad (x, y)$

Identify x *and* y
Substitute Point for x *and* y
Solve

$y = x + 1$
$(3) \neq (1) + 1$
$3 \neq 2$ ✗

If it doesn't work it's NOT a Point on the Line.

Therefore Not the intersection!