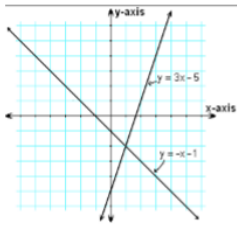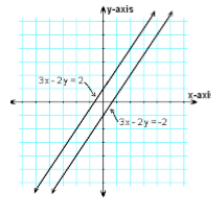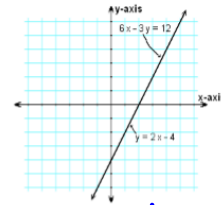# Systems of Equations

Intersecting Lines
Consistent &
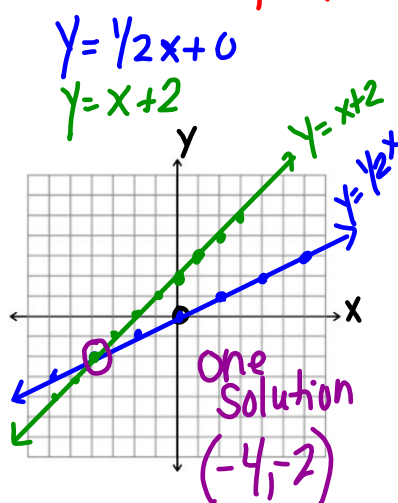Independent

Parallel lines
Inconsistent

Same Line
Consistent &
Dependent

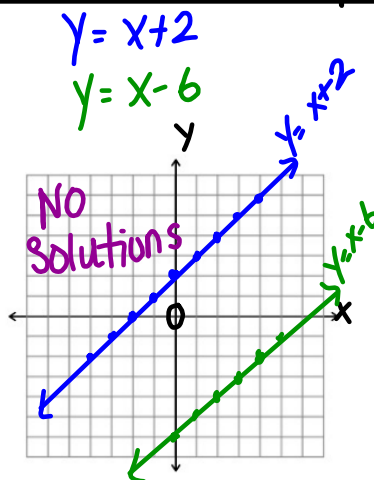May 4-7:33 AM

One SOLUTION

at the ordered
Pair where the 2
lines intersect
* You must state
the ordered pair *

$y = \frac{1}{2}x + 0$
$y = x + 2$

one
Solution
$(-4, -2)$

No SOLUTION

because the 2 lines
Never intersect.

* Parallel lines
have the Same Slope

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

NO
Solutions

Infinite Solutions

because they
intersect (share)
all the Same points
*when in $y = mx + b$
they have Same slope
& y-int.

$y = x + 1$
$y - x = 1 + x \Rightarrow y = x + 1$

$y - x = 1$

May 4-7:35 AM

Systems

3 things can happen:
① lines intersect = 1 Solution
② Parallel lines = No Solution
③ Same line = infinite Solutions

Consistent Systems - Have <u>at least</u> one Solution
(intersecting & Same)

Incosistent Systems - Have NO Solutions
(parallel)

Independent vs. Dependent [only for consistent Systems]
↓ ↓
One Solution Infinite Solutions
(intersecting) (Same line)

Oct 28-8:43 AM