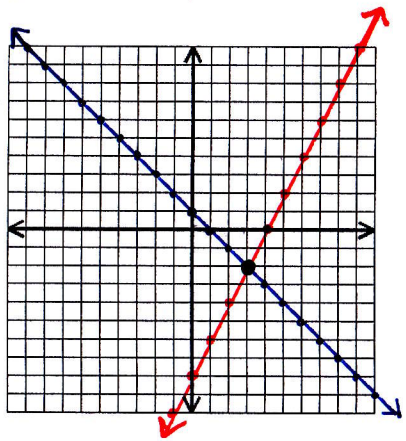
8.1 – GRAPHING SYSTEMS OF EQUATIONS

Solve each system by graphing.

1. $2x - y = 8$
   $x + y = 1$

$-y = -2x + 8$
$y = 2x - 8$
$y = -x + 1$



Solution: (3, -2)

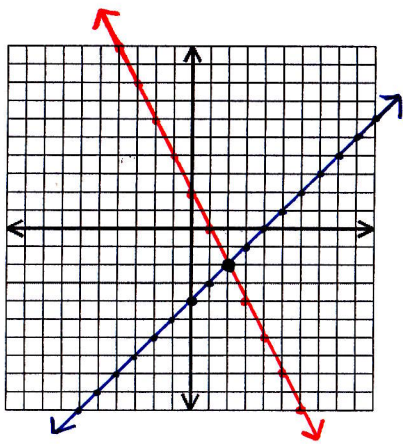
CHECK:

$2(3) - (-2) = 8$
$6 + 2 = 8$
$8 = 8$ ✓

$3 - 2 = 1$
$1 = 1$ ✓

2. $2x + y = 2$
   $x - y = 4$

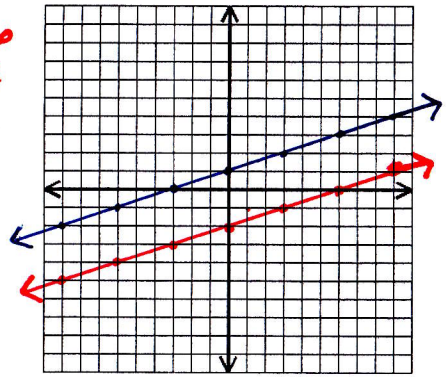
$y = -2x + 2$
$-y = -x + 4$
$y = x - 4$



Solution: (2, -2)

3. $x - 3y = 6$
   $x - 3y = -3$

$-3y = -x + 6$
$y = \frac{1}{3}x - 2$
$-3y = -x - 3$
$y = \frac{1}{3}x + 1$

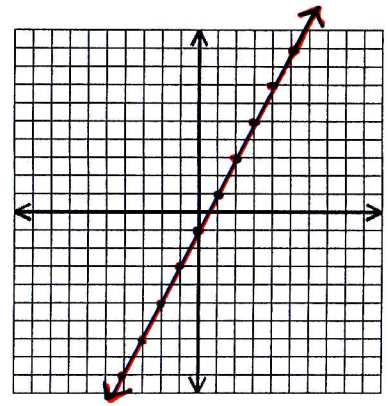


Same slope means lines are parallel. They will never intersect!

No solution

4. $2x - y = 1$
   $6x - 3y = 3$

$-y = -2x + 1$
$y = 2x - 1$
$-3y = -6x + 3$
$y = 2x - 1$



Same line! Intersects everywhere!

Infinite solutions