9.6 Solving Systems of Equations by Graphing

What is the solution of the following systems of equations?

(4, 2)   (2, -2)   (-2, 4)
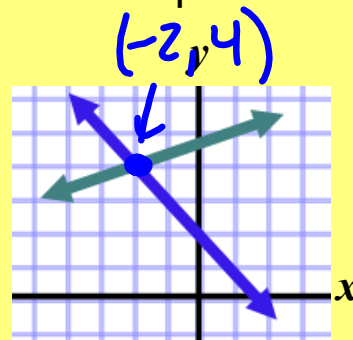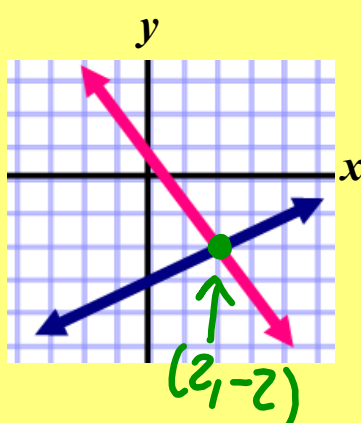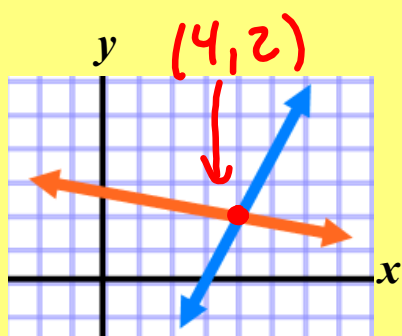
The three above examples are called <u>consistent independent</u> systems because the lines are distinct (meaning independent) and intersect (meaning consistent).

Decide whether the ordered pair is a solution of the system of linear equations.

1. $-x + y = -2$
   $2x + y = 10$ (-4, -2)

2. $3x + y = 11$
   $x - 2y = 6$ (4, -1)

Solve the system of equations by graphing.

3. ① $y = \frac{2}{3}x - 1$
   ② $y = 1x + 4$

① $m = \frac{2}{3}$

$b = -1$

② $m = -1 = \frac{-1}{1}$

$b = 4$

(3, 1)
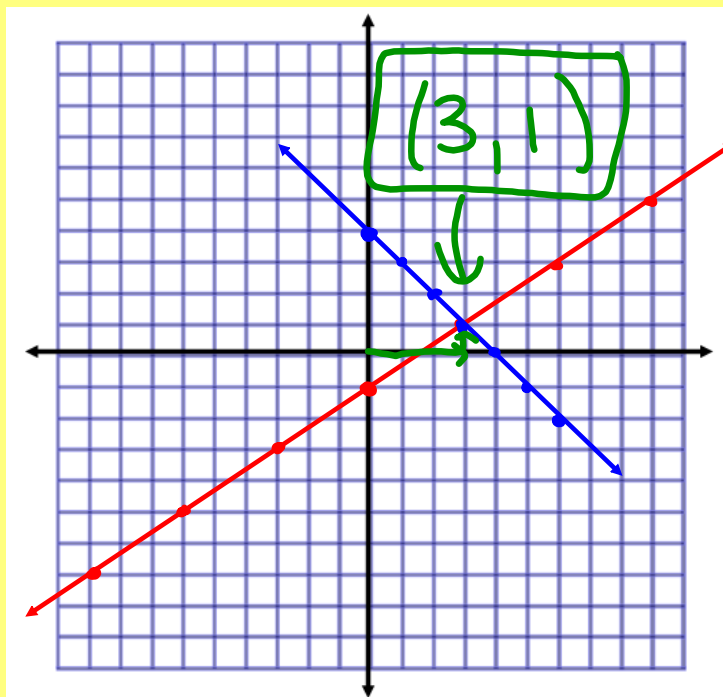
Solve the system of equations by graphing.

4. ① $y = -2x + 1$
   ② $y = 1x - 5$

① $m = -2 = \frac{-2}{1}$

$b = 1$

② $m = 1 = \frac{1}{1}$

$b = -5$

(2, -3)
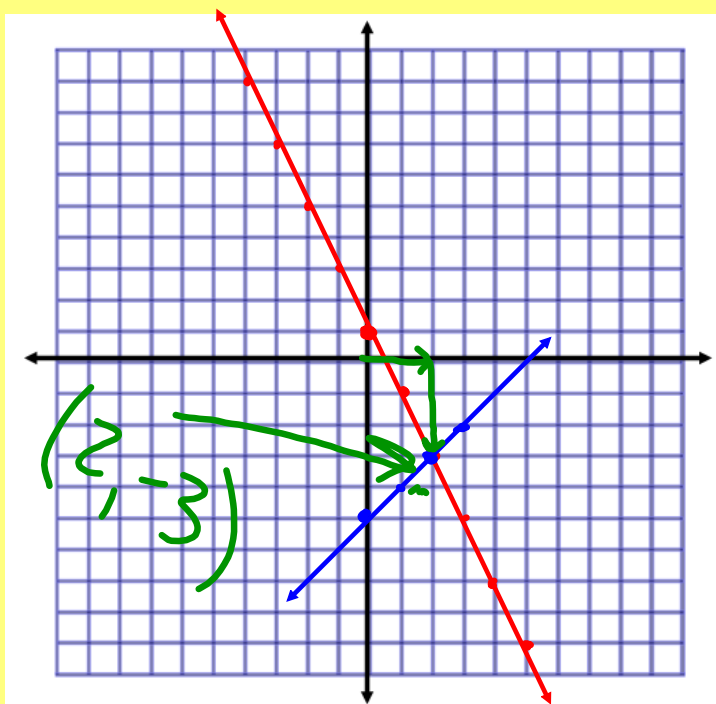
Solve the system of equations by graphing.

5. ① $y = 2x + 0$
② $x + y = 3$

① $m = 2 = \frac{2}{1}$

$b = 0$

② $x + y = 3$
$-x \qquad -x$

$y = 3 - 1x$

$m = -1 = \frac{-1}{1}$

$b = 3$

$(1, 2)$
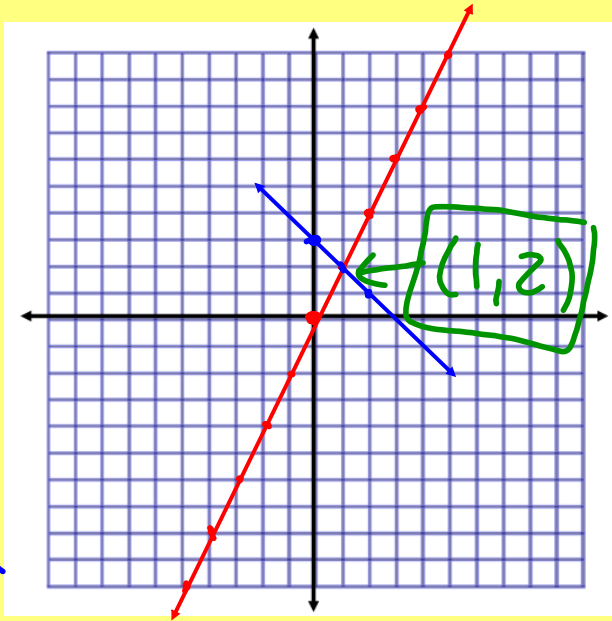
Solve the system of equations by graphing.

6. ① $5x + 6y = 30$
② $y = \frac{1}{3}x - 2$

① $5x + 6y = 30$
$-5x \qquad\qquad -5x$

$\dfrac{6y}{6} = \dfrac{30}{6} - \dfrac{5x}{6}$

$y = 5 - \dfrac{5}{6}x$

$m = \dfrac{-5}{6} = w \qquad b = 5$

② $m = \dfrac{1}{3} = w \qquad b = -2$

$(6, 0)$
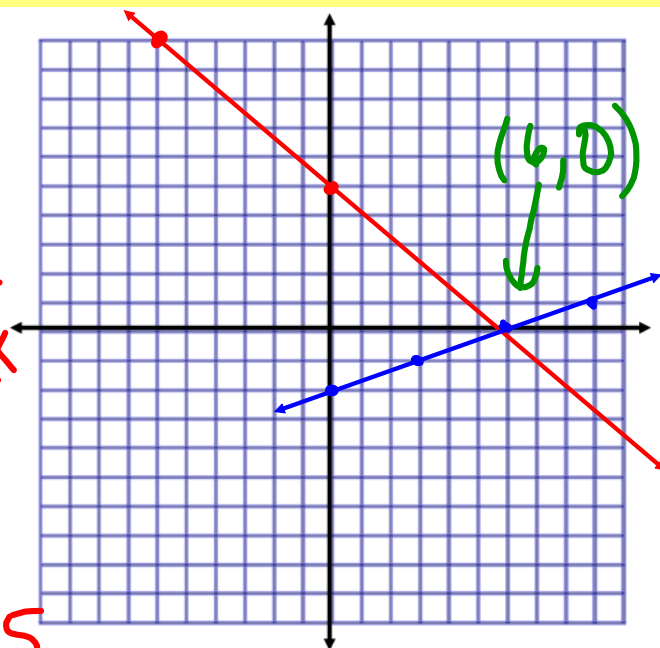
Solve the system of equations by graphing.

7. ① $y = 3x + 1$
   ② $-3x + y = -4$

① $m = 3 = \dfrac{3}{1}$

$b = 1$

② $-3x + y = -4$
   $+3x \qquad\qquad +3x$

$y = -4 + 3x$

$m = 3 = \dfrac{3}{1} \quad b = -4$
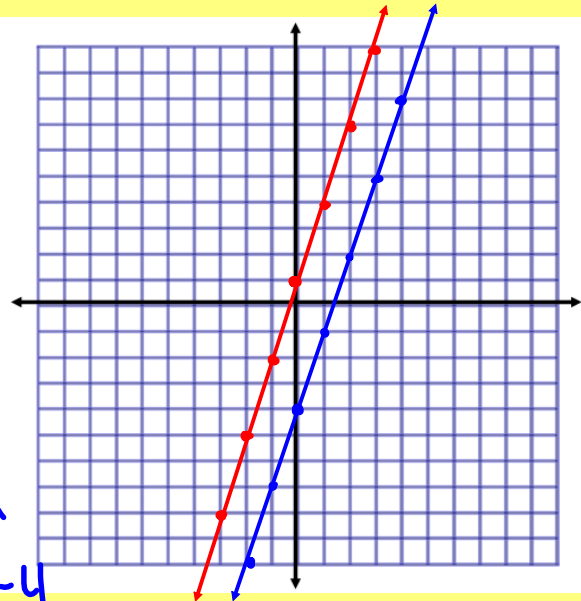
PARALLEL

NO SOLUTION

Solve the system of equations by graphing.

8. ① $x - 2y = 6$
   ② $4y = 2x - 12$

① $x - 2y = 6$
   $-x \qquad\qquad -x$

$\dfrac{-2y}{-2} = \dfrac{6}{-2} - \dfrac{x}{-2}$

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

$m = \dfrac{1}{2} \quad b = -3$

② $\dfrac{4y}{4} = \dfrac{2x}{4} - \dfrac{12}{4}$

$y = \dfrac{1}{2}x - 3$

INFINITE SOLUTIONS

$m = \dfrac{1}{2}$

$b = -3$