

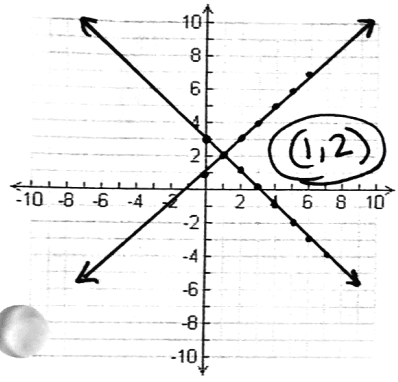
Name: Key

Solving Systems by Graphing & Substitution Worksheet

Solve each system two ways: By substitution AND by graphing.

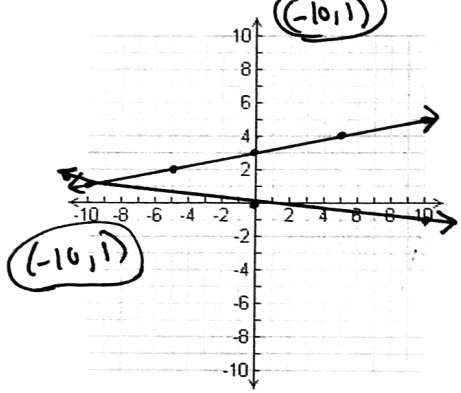
1) $\begin{cases} y = -x + 3 \\ y = x + 1 \end{cases}$

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



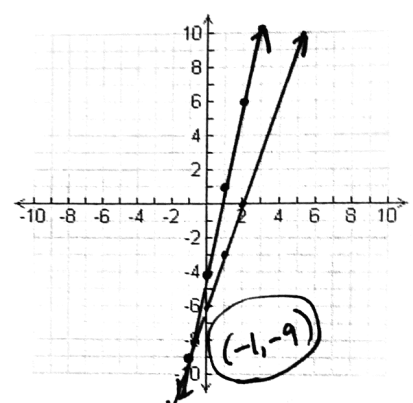
2) $\begin{cases} y = \frac{1}{5}x + 3 \\ y = -\frac{1}{10}x \end{cases}$

$\frac{1}{5}x + 3 = -\frac{1}{10}x$
 $-\frac{1}{5}x$ $-\frac{1}{3}x$
 $3 = -\frac{1}{10}x - \frac{2}{10}x$
 $-\frac{10}{3} \cdot 3 = -\frac{10}{3} \cdot -\frac{3}{10}x$ $y = \frac{1}{5}(-10) + 3$
 $x = -10$ $y = -2 + 3$
 $y = 1$
(-10, 1)



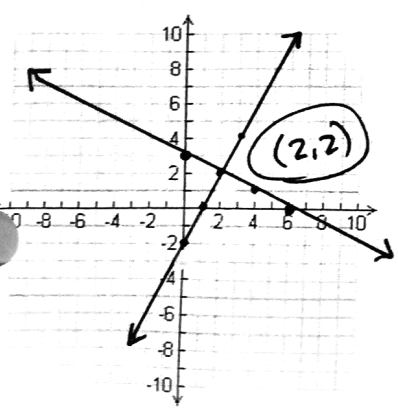
3) $\begin{cases} y = 5x - 4 \\ 3x - y = 6 \end{cases}$ $-y = -3x + 6$
 $y = 3x - 6$

$3x - (5x - 4) = 6$
 $3x - 5x + 4 = 6$
 $-2x + 4 = 6$
 $-2x = 2$ $x = -1$ **(-1, -9)**
 $y = 5(-1) - 4$
 $y = -5 - 4$
 $y = -9$



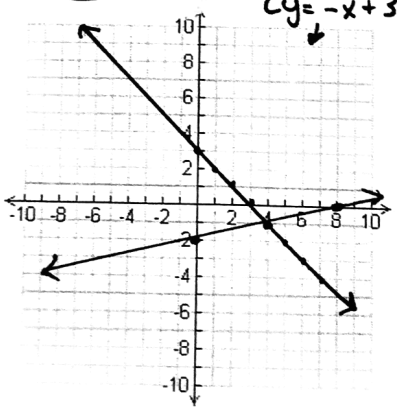
4) $\begin{cases} 3x + 6y = 18 \\ y = 2x - 2 \end{cases}$

$3x + 6(2x - 2) = 18$
 $3x + 12x - 12 = 18$
 $15x = 30$
 $x = 2$
 $y = 2(2) - 2$
 $y = 2$
(2, 2)



5) $\begin{cases} x - 4y = 8 \\ x + y = 3 \end{cases}$

$y = -x + 3$
 $x - 4(-x + 3) = 8$
 $x + 4x - 12 = 8$
 $5x - 12 = 8$
 $5x = 20$
 $x = 4$
 $4 + y = 3$
 $y = -1$
(4, -1)
 $-4y = -x + 8$
 $5y = \frac{1}{4}x - 2$
 $2y = -x + 3$



6) $\begin{cases} 6x + 3y = 9 \\ -x + 3y = -12 \end{cases}$

$-x = -3y - 12$
 $x = 3y + 12$
 $6(3y + 12) + 3y = 9$
 $18y + 72 + 3y = 9$
 $21y = -63$
 $y = -3$
 $-x + 3(-3) = -12$
 $-x - 9 = -12$
 $-x = -3$
 $x = 3$
(3, -3)
 $3y = -6x + 9$
 $\rightarrow y = -2x + 3$
 $3y = x - 12$
 $\rightarrow y = \frac{1}{3}x - 4$

