MATH 0482

Chapter 3.1 Linear Systems with Two Variables and Their Solutions

SYSTEM OF EQUATIONS:

TWO OR MORE EQUATIONS WITH THE SAME VARIABLES

LINEAR SYSTEM:

2 LINEAR EQUATIONS EACH WITH TWO VARIABLES

$$\begin{cases} 2x - 3y = 0 \\ -4x + 2y = -8 \end{cases}$$

SOLUTION:

ORDERED PAIR (x, y) WHICH SOLVES BOTH EQUATIONS

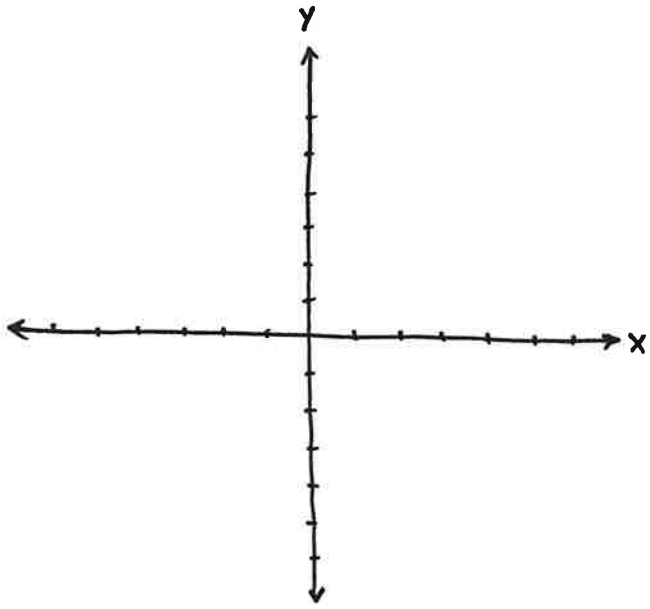
DETERMINE IF $(1,0)$ IS A SOLUTION TO $\begin{cases} x - y = 1 \\ -2x + 3y = 5 \end{cases}$.

Solve by Graphing.

$$\begin{cases} 2x - 3y = 0 \\ -4x + 2y = -8 \end{cases}$$

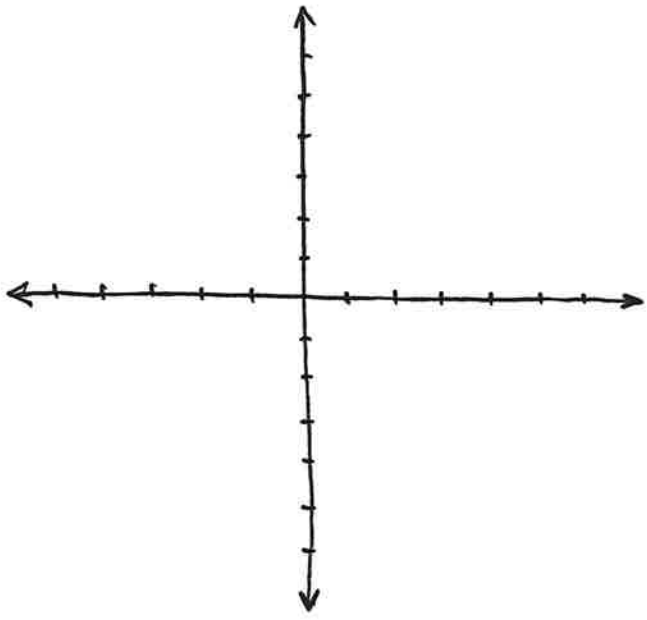
ORIGINAL SYSTEM

EQUIVALENT SYSTEM



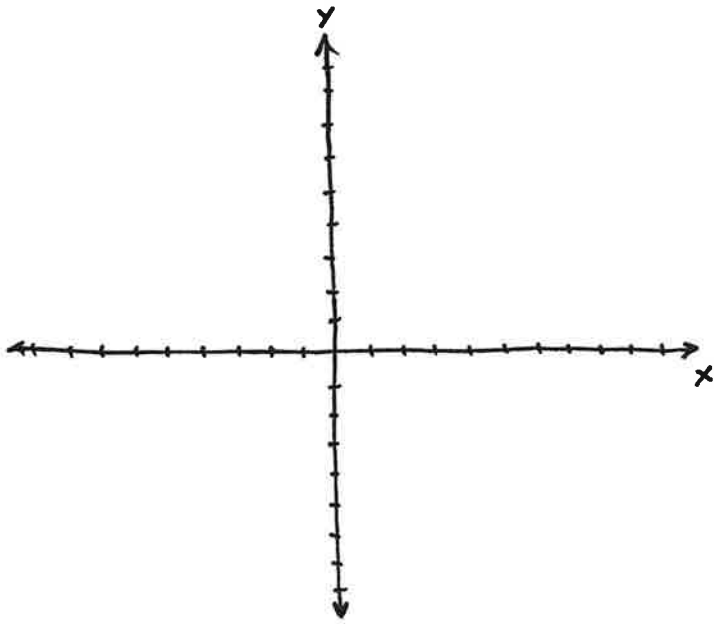
Solve by Graphing.

$$\begin{cases} x - y = -4 \\ 2x + y = 1 \end{cases}$$



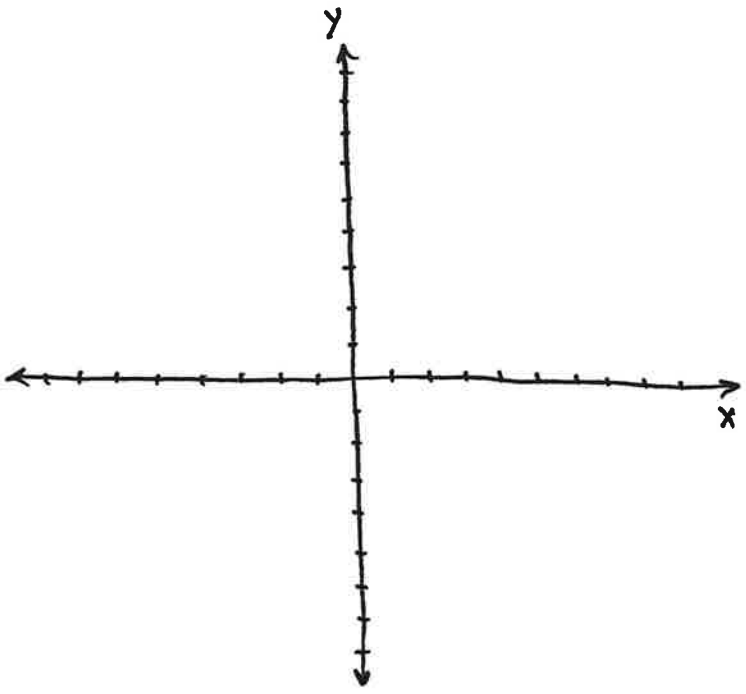
SOLVE BY GRAPHING.

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

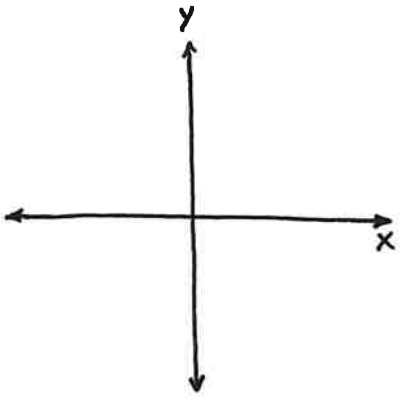


SOLVE BY GRAPHING.

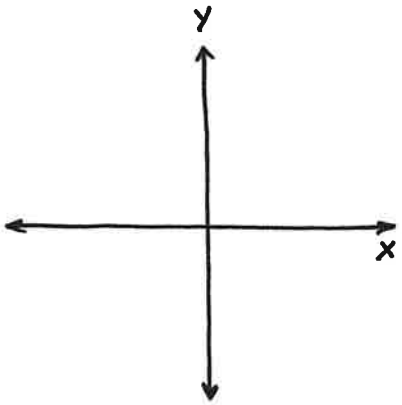
$$\begin{cases} 3x + y = 6 \\ y = -3 \end{cases}$$



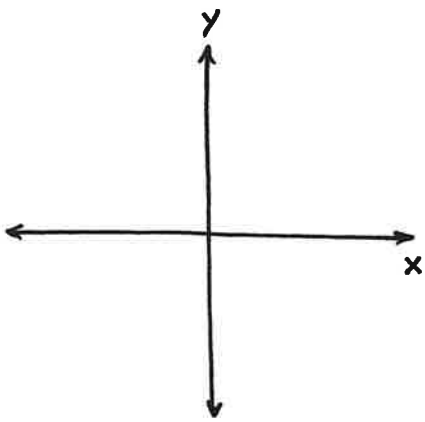
Types of Systems



CONSISTENT
INDEPENDENT



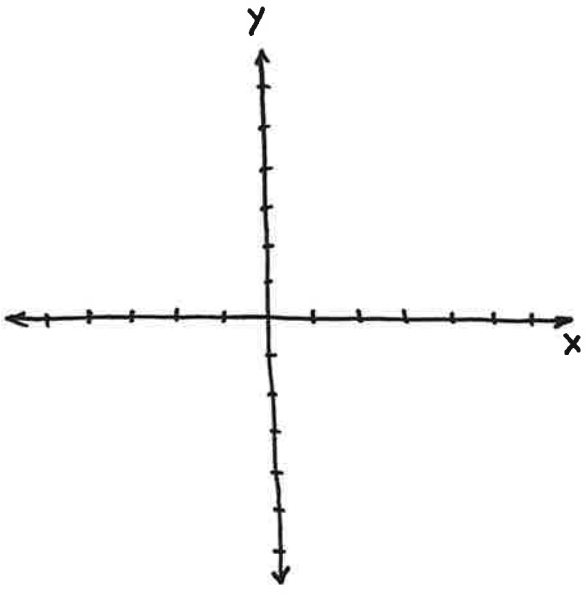
CONSISTENT
DEPENDENT



INCONSISTENT

Solve by Graphing.

$$\begin{cases} -2x + 3y = -9 \\ 4x - 6y = 18 \end{cases}$$



SOLVE BY GRAPHING.

$$\begin{cases} -2x + 5y = -15 \\ -4x + 10y = 10 \end{cases}$$