

11-8-19

Graph the following equation and inequality. Shade as appropriate.

1. $3x - 2y = 12$

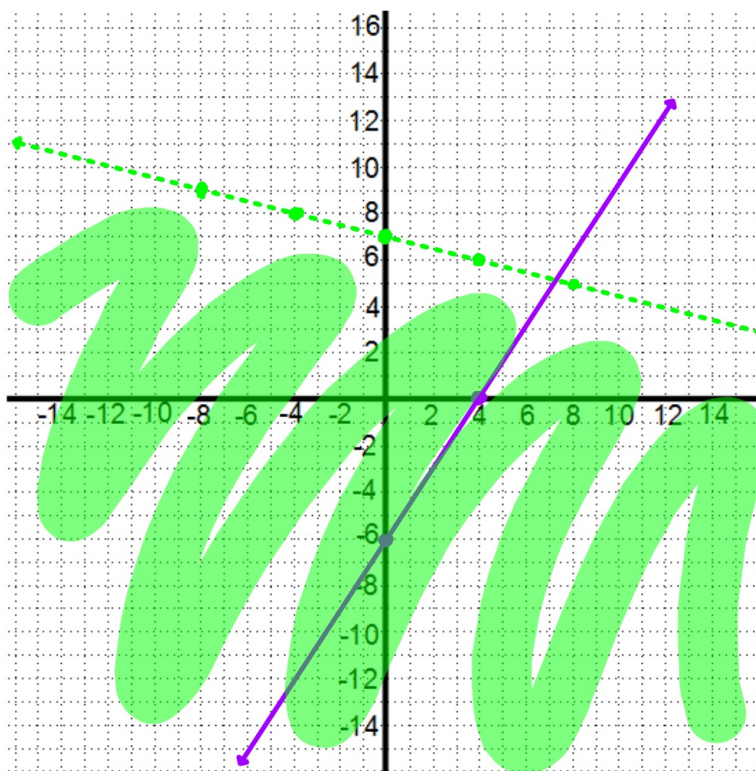
2. $y < -\frac{1}{4}x + 7$

1. $3x - 2y = 12$

x	y
0	-6
4	0

2. $y < -\frac{1}{4}x + 7$

x	y
-8	9
-4	8
0	7
4	6
8	5



$$\begin{array}{r}
 8 + 2 = 10 \quad \text{True} \\
 + \quad 7 + 4 = 11 \quad \text{True} \\
 \hline
 15 + 6 = 21 \quad \text{True}
 \end{array}$$

Elimination

$$\begin{array}{r}
 8x + 2y = 10 \quad \text{True} \\
 + \quad 7x - 2y = 5 \quad \text{True} \\
 \hline
 15x = 15
 \end{array}$$

check both solutions
by putting both
values into the
other equation

$$\begin{array}{l}
 7(1) - 2(1) = 5 \\
 7 - 2 = 5 \\
 5 = 5 \quad \checkmark
 \end{array}$$

Solve
for x

$$\begin{array}{r}
 8x + 2y = 10 \quad \text{True} \\
 + \quad 7x - 2y = 5 \quad \text{True} \\
 \hline
 15x = 15 \\
 \frac{15x}{15} = \frac{15}{15} \\
 \hline
 x = 1
 \end{array}$$

Solve for
y: Put
x-value
into equation

$$\begin{array}{r}
 8(1) + 2y = 10 \\
 8 + 2y = 10 \\
 -8 \quad -8 \\
 \hline
 2y = 2 \\
 \frac{2y}{2} = \frac{2}{2} \\
 \hline
 y = 1
 \end{array}$$

$(1, 1)$

$$\begin{array}{r} 6x + 3y = 18 \\ + \quad x - 3y = -11 \quad * \\ \hline \end{array}$$

$$\frac{7x}{7} = \frac{7}{7}$$

$$x = 1$$

$$6(1) + 3y = 18$$

$$\begin{array}{r} 6 + 3y = 18 \\ -6 \quad -6 \\ \hline \end{array}$$

$$\frac{3y}{3} = \frac{12}{3}$$

$$y = 4$$

(1, 4)

$$1 - 3(4) = -11$$

$$1 - 12 = -11$$

$$-11 = -11 \quad \checkmark$$

1. Solve for x by eliminating y

2. Solve for y by putting in x-value

3. Check solutions by putting both values in

$$\begin{array}{r} 2x + 3y = 7 \quad \dots \rightarrow 2x + 3y = 7 \\ 3(x - y = 1) \rightarrow + 3x - 3y = 3 \\ \hline \end{array}$$

$$\frac{5x}{5} = \frac{10}{5}$$

$$x = 2$$

1. Multiply so you can eliminate something

2. Solve for x by eliminating y

3. Solve for y by putting x-value into equation

4. Check solution by putting x and y back into equation

$$2(2) + 3y = 7$$

$$\begin{array}{r} 4 + 3y = 7 \\ -4 \quad -4 \\ \hline \end{array}$$

$$\frac{3y}{3} = \frac{3}{3}$$

$$y = 1$$

(2, 1)

$$2 - 1 = 1$$

$$1 = 1 \quad \checkmark$$

$$\begin{array}{r}
 -3(2x + y = 25) \longrightarrow -6x - 3y = -75 \\
 \underline{4x + 3y = 9} \quad \text{-----} \longrightarrow \underline{+4x + 3y = 9} \\
 \hline
 -2x = -66 \\
 \underline{-2} \quad \underline{-2} \\
 \hline
 x = 33
 \end{array}$$

$$4(33) + 3y = 9$$

$$\begin{array}{r}
 132 + 3y = 9 \\
 \underline{-132} \quad \underline{-132} \\
 \hline
 3y = -123
 \end{array}$$

$$\begin{array}{r}
 3y = -123 \\
 \underline{3} \quad \underline{3} \\
 \hline
 y = -41
 \end{array}$$

$$y = -41$$

$$(33, -41)$$

check:

$$2(33) - 41 = 25$$

$$66 - 41 = 25$$

$$25 = 25 \checkmark$$

To solve systems of equations by elimination, I need to...

1. Eliminate one of the variables (you may have to multiply).
2. Solve for the variable that is left.
3. Input the answer from step 2 into one of the original equations, then solve for the other variable.
4. Check both solutions by putting both values into the other original equation.