System of Equations Murder Mystery   Name:_____

Mrs. DeDuijtsche has been murdered. Ten suspects were brought in from your fellow students. The police provided a description of what each person was wearing. Solve the system of equations problems to 'question' witnesses and use their clues to narrow down the suspects to the killer.

Suspects	Pants Color	Sock Color	Hat Color	Coat Color	Shoe size
Avery	Blue	black	blue	red	6
Cassadi	red	brown	white	green	10.5
Preslee	white	brown	black	white	7
Tristan	green	yellow	brown	yellow	9
Laynee	brown	green	white	orange	6.5
Mr. Beam	black	red	red	black	8
Mr. McBride	black	red	black	blue	12
Michael	green	black	blue	red	10
Brayden	white	brown	brown	green	7.5
Mylie	white	yellow	green	blue	11

#1 Solve the system of equations by graphing.

$y = -x + 1$

$y = -x - 2$
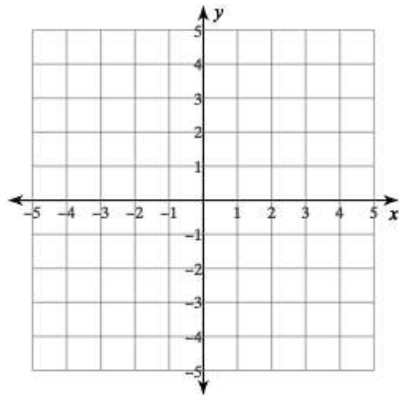
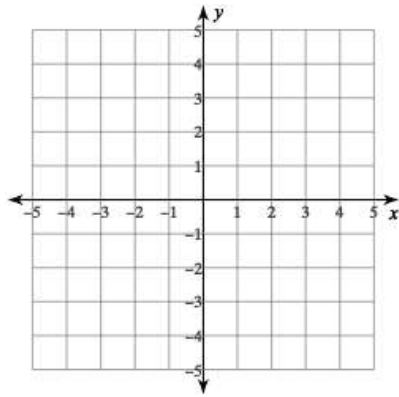**#2 Find the solution to the system of equations**

$-12x - 4y = 12$
$7x + 4y = 8$

The solution is the point (1, -2) The murderer is not wearing green pants.	There is No Solution The murderer is not wearing blue pants.	The solution is the point (9, -4) The murderer is not wearing a black coat.	The solution is the point (-4, -15) The murderer is not wearing an orange coat.
The solution is the point (-1, -1) The murderer is not wearing black pants.	There are Infinitely Many Solutions The murderer is not wearing white pants.	The solution is the point (4, -15) The murderer is not wearing a yellow coat.	The solution is the point (-4, 9) The murderer is not wearing a red coat.

#3 Solve the system of equations by graphing.	#4 Find the solution to the system of equations

$$y = \frac{-1}{4}x - 4$$

$$y = \frac{7}{4}x + 4$$

#4 Find the solution to the system of equations

x + 8y = -15
7x + 8y = -9

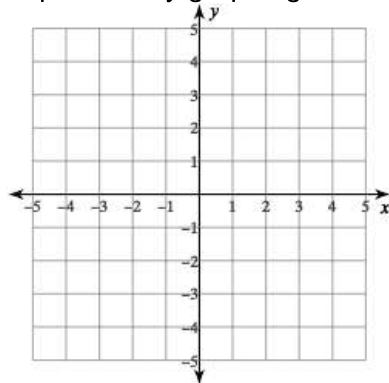| The solution is (-4, -3) The murderer is not wearing a blue hat.	The solution is (-3, -4) The murderer is not wearing a brown hat.
The solution is (4, 3) The murderer is not wearing a red hat.	The solution is (5, 4) The murderer is not wearing a green hat.

The y-value of the solution is 3. The murderer does not have brown socks.	The y-value of the solution is -2. The murderer does not have yellow socks.
The y-value of the solution is 7. The murderer does not have black socks.	The y-value of the solution is 1. The murderer does not have red socks.

#5 Solve the system of equations by graphing.

$$-2x + y = 3$$

$$y = -4x - 3$$

#6 Find the solution to the system of equations

-6x - 9y = 0
-24x = 36y

| The x-value of the solution is 1. The murderer is not wearing a white hat.	The x-value of the solution is 0. The murderer is not wearing a blue hat.
The x-value of the solution is 3. The murderer is not wearing a purple hat.	The x-value of the solution is -1. The murderer is not wearing a brown hat.

There are Infinitely Many Solutions. The murderer's shoes are smaller than size 11.	The solution is (3, 5) The murderer's shoes are smaller than size 12.
The solution is (0, 7) The murderer's shoes are smaller than size 10.	There is No Solution The murderer's shoes are smaller than size 9.

#7 Solve the system of equations by graphing.	#8 Find the solution to the system of equations
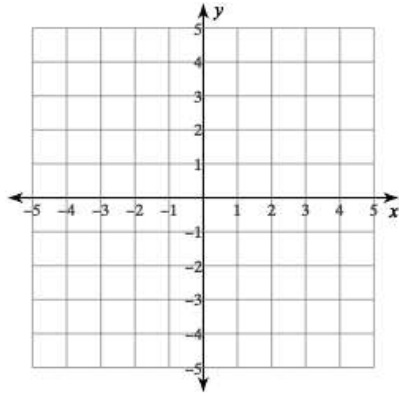
#7 Solve the system of equations by graphing.

$y = -1$

$y = \dfrac{-5}{2}x + 4$

#8 Find the solution to the system of equations

5x + 3y = 15
10x + 6y = 20

The solution is the point (-1, 2) The murderer's shoes are bigger than size 5.	The solution is the point (2, -1) The murderer's shoes are bigger than size 6.5.
The solution is the point (3, -1) The murderer's shoes are bigger than size 7.	The solution is the point (-2, -1) The murderer's shoes are bigger than size 8.

There is No Solution The murderer's coat and pants are not the same color.	The y-value of the solution is 10. The murderer is not wearing a white hat.
The x-value of the solution is 0. The murderer is not wearing white pants.	The solution is the point (0, 0) The murderer is not wearing a white coat.

#9 Solve the system of equations by graphing.

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

$3x + 2y = 4$
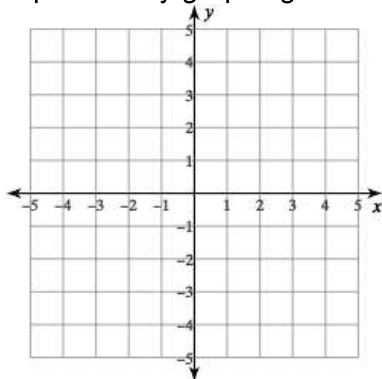
The murder is _____ !!!

The solution is the point (4, -4) The murderer is not wearing a black hat.	The solution is the point (-1, 2) The murderer is not wearing a green hat.
The solution is the point (3, 2) The murderer is not wearing a red hat.	The solution is the point (0, 0) The murderer is not wearing a blue hat.