$\qquad$
$\qquad$ Date: $\qquad$

## NOTES: Section 3.1 - Solve Linear Systems by Graphing

Goals: \#1 - I can solve a linear system using the graphing method and then check my solution algebraically.
\#2 - I can classify a system as consistent and independent, consistent and dependent, or inconsistent.

Homework: Lesson 3.1 Worksheet

## Warm Up:

1. Identify the domain and range of the given relation. Then tell whether the relation is a function.

a. Domain: $\qquad$
b. Range: $\qquad$
c. Function?: $\qquad$ Why?

Exploration \#1: Work with a partner. Graph both linear equations on the same graph.

$$
\begin{aligned}
& 4 x+y=8 \\
& 2 x-3 y=18
\end{aligned}
$$



Circle where these lines intersect. Can you check if your answer is correct?
$\qquad$
$\qquad$ Date: $\qquad$

## Notes:

A $\qquad$ , consists of two $\qquad$ equations.

A $\qquad$ of a system of linear equations, is a $\qquad$ $(x, y)$ where the graphs of the equations in a system $\qquad$ .

Exploration \#2: Work with a partner. Graph both linear equations on the same graph.


Circle where these lines intersect. Can you check if your answer is correct?

## Notes:

Lines that never intersect are called $\qquad$ .

Since the graphs of the system do $\qquad$ intersect, we have $\qquad$ .

CHALLENGE: Could we have a system with a solution besides ONLY ONE SOLUTION, or NO SOLUTION?
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$\qquad$ Date: $\qquad$

Exploration \#3: Work with a partner. Graph both linear equations on the same graph.

$$
\begin{aligned}
& 4 x-3 y=8 \\
& 8 x-6 y=16
\end{aligned}
$$



Circle where these lines intersect. Can you check if your answer is correct?

## Notes:

Lines that intersect at every point are $\qquad$ .

Since the graphs of the system intersect at $\qquad$ point, we have
$\qquad$ .

Anytime there IS a solution to the linear system, we call the system $\qquad$ .

- A consistent system can be $\qquad$ if there is $\qquad$ solution.
- A consistent system can be $\qquad$ if there is $\qquad$ solutions.

Anytime there IS NO solution to the linear system, we call the system $\qquad$ .

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$\qquad$ Date: $\qquad$

Example \#1: You are going fridge shopping! The price of refrigerator A is $\$ 600$, and the price of refrigerator $B$ is $\$ 1200$. The cost of electricity needed to operate your new refrigerators is $\$ 50$ per year for refrigerator $A$ and $\$ 40$ per year for refrigerator $B$.
a. Write a system of equations that models the cost of owning refrigerator A and the cost of owning refrigerator B . Be sure to define your variables.
b. Solve your system of equations by graphing. Be sure to label your axes.

c. After how many years are the total costs of owning the refrigerators equal?

