Warm Up:
Graph the following:

\[ -2x + y = -3 \quad \text{and} \quad 3x + y = 9 \]

Learning Goal: I will be able to solve systems of equations by graphing and analyze special systems.

Vocabulary:
System of linear equation: two or more linear equations
Solution of a system of linear equations: any ordered pair that makes all of the equations in a system true. \((x, y)\)

Vocabulary:
Inconsistent: when a system of equations has no solutions
Consistent: when a system of equations has at least one solution.
Independent: when a consistent system has exactly one solution.
Dependent: when a consistent system has infinitely many solutions.
Helpful Hints:

**Use graph paper for more accurate solutions**
**ALWAYS check your work!!**

Check your Answers!
You know your ordered pair is the correct solution if it makes BOTH equations true.

Check your solution.

Example 1:
Solve the system by graphing.

\[ y = 3x + 1 \]
\[ y = -x + 5 \]

Check your solution.

Example 2:
Solve the system by graphing.

\[ y = \frac{1}{2}x - 3 \]
\[ 3x + y = 4 \]
Check your Answers!
You know your ordered pair is the correct solution if it makes BOTH equations true. Check your solution.

Example 3: (with your shoulder buddy)
Solve the system by graphing.

\[ y = -\frac{1}{5}x + 1 \]
\[ y = \frac{2}{5}x - 10 \]

Example 4:
Solve the system by graphing.

\[ 2y - x = 2 \]
\[ y = \frac{1}{2}x + 1 \]

Vocabulary:
One Solution: C
No Solutions: B
Infinitely Many Solutions: A
**Example 5:** Solve the system by graphing.

\[
\begin{align*}
y &= 2x + 2 \\
y &= 2x - 1
\end{align*}
\]

**Summary**

How do you check your solution?
- Plug point into equations

How do you know if there is no solution?
- Never cross, same slope different intercept

What does it mean when a system has many solutions?
- Every point works

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**Coursework:** Worksheet!