

Warm-Up

For each of the following equations,
solve so all variable terms are on the **left**
and the constant term is on the **right**.

1. $x = y + 2$

2. $4y = -5 + 8x$

3. $x + 9y = y + 6$

$$\textcircled{1} \begin{array}{r} x = y + 2 \\ -y \quad -y \\ \hline x - y = 2 \end{array}$$

$$\textcircled{2} \begin{array}{r} 4y = -5 + 8x \\ -8x \quad -8x \\ \hline 4y - 8x = -5 \end{array}$$

$$\textcircled{3} \begin{array}{r} x + 9y = y + 6 \\ -y \quad -y \\ \hline x + 8y = 6 \end{array}$$

Clear Learning Target

You will be able to determine whether an equation is linear by rewriting it in standard form.

Summary of Last Week's "Is It Linear?"

Discussion:

- > Can't have **exponents** and be linear
- > Can't have **variables multiplied together** and be linear
- * If the equation is in **standard form**, it is linear

The way we decide if an equation is linear is by...

calculating if we can rewrite the equation in standard form

$Ax + By = C$, where $A, B, \text{ and } C$ are any real numbers

For example: Is $x = y + 1$ linear?

$$x - y = 1$$

You Try!

Is $2x = 7y + 3$ linear?

$-7y$ $-7y$

$$2x - 7y = 3$$

yes,
linear!

Example 2:

Is $x + y = 5 - 3y$ linear?

$+3y$ $+3y$

$$x + 4y = 5$$



linear!

You Try!

Is $3x - 8y = 6x - 5$ linear?

$$-6x \quad -6x$$

$$\boxed{-3x - 8y = -5}$$

Example 3:

Is $2y = 4$ linear?

yes

$$0x + 2y = 4$$

★ Don't forget! A, B, or C can
be ZERO!

$$\cancel{0x} + 2y = 4$$

$$2y = 4$$

You Try!

Is $3x = -4$ linear?

$$3x + 0y = -4 \quad \text{yes!}$$

You Try!

Is $xy = 2$ linear?

$$\cancel{y} \quad \cancel{y}$$
$$x = \frac{2}{y}$$

NO. \cap

Example 4:

Is $x^2 = y + 10$ linear?

$$\cancel{y} \quad \cancel{y}$$

$$x^2 - y = 10$$

NO. \cap

