Warm Up

1.) Write the equation of the line graphed.

Write a linear equation given the following information

2.) $x - 2y = 3$

3.) $m = \frac{1}{4}$; $(0, 8)$

4.) $(4, -5)$ and $(12, -3)$
Graphing Linear Equations
INTRO

Let $y = 2x - 1$

<table>
<thead>
<tr>
<th>X</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2</td>
<td>-5</td>
</tr>
<tr>
<td>-1</td>
<td>-3</td>
</tr>
<tr>
<td>0</td>
<td>-1</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Without a Table

**GRAPHING LINEAR EQUATIONS**  
(By Slope-Intercept)

Use the steps below to graph an equation using slope-intercept form:

1. Write the equation in **slope-intercept form**.
2. Graph the **y-intercept**. This is always point (0, b).
3. Use the **slope** of the line to create more points. Remember slope is rise/run.
4. Use a ruler to draw a line that extends through the points, placing an arrow on both ends.

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

\[ b = (0, 5) \]
\[ m = \frac{-1}{1} \]

2. \[ y = -3x - 1 \]

\[ b = (0, -1) \]
\[ m = -\frac{3}{1} \]

3. \[ y = \frac{2}{5}x + 2 \]

\[ b = (0, 2) \]
\[ m = \frac{2}{5} \]
7. \( y = -3 + 5x \)

Check for \( y = mx + b \! \)

\[
\begin{align*}
b &= (0, -3) \\
m &= \frac{5}{1}
\end{align*}
\]

8. \( y = -4x \)

What is the y-intercept?

\[
\begin{align*}
b &= (0, 0) \\
m &= -\frac{4}{1}
\end{align*}
\]
10. \( x + 3y = -3 \)

\[
\begin{align*}
\text{\( \frac{-x}{3} \)} & = \text{\( \frac{-x-3}{3} \)} \\
\text{\( \frac{3y}{3} \)} & = \text{\( \frac{-x}{3} \)} \\
y & = \text{\( \frac{-1}{3}x - 1 \)}
\end{align*}
\]

What form do the equations need to be in before you can graph?

11. \( x - y = -5 \)

\[
\begin{align*}
\text{\( \frac{x-y}{-1} \)} & = \text{\( \frac{-x-5}{-1} \)} \\
y & = \text{\( x + 5 \)}
\end{align*}
\]
Independent Practice!
Complete #4 -6 and 14-17