Bellwork:

What is the slope and y-intercept of the equation $y = x + 4$

$$m = \frac{1}{1} \quad y = mx + b$$

Write the equation of the line graphed below.

$$y = -\frac{1}{2}x + 4$$
2.2: Standard Form and Intercepts

OBJ: Write in standard form. Graph using x and y intercepts
Ex 1: Write equation in standard form

\[ Ax + By = C \]

- Another way to write the equation of a line:

- \( X \) and \( Y \) on the same side of equal.

- coefficients are integers not fractions or decimals.

- Positive value for \( Ax \) term
Change from slope-intercept form to standard form.

\[ y = -2x + 8 \]

\[ +2y + 2x \\ 2x + y = 8 \]

\[ \frac{3}{4} \cdot \frac{x}{4} = \frac{12}{4} \]

\[ -3 \cdot \left( -\frac{3}{4}x + y = -5 \right) \]

\[ 3x - 4y = 20 \]
Ex 2: Graph by finding intercepts

Find the intercepts of $3x + 5y = 15$ then graph

To find X intercept:
*Write as $(x, 0)$

make $y = 0$

<table>
<thead>
<tr>
<th>X</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

To find Y intercept:
*Write as $(0, y)$

make $x = 0$

$3(0) + 5y = 15$

$5y = 15$

$y = 3$

$3x + 5(0) = 15$

$3x = 15$

$x = 5$
Ex 2: Graph by finding intercepts

Find the intercepts of $-2x + 4y = 8$ then graph

To find X intercept:
*Write as $( ,0)$

To find Y intercept:
*Write as $(0, )$

<table>
<thead>
<tr>
<th>X</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>-4</td>
<td>0</td>
</tr>
</tbody>
</table>

$-2(0) + 4y = 8$
$4y = 8$
$y = 2$

$-2x + 4(0) = 8$
$-2x = 8$
$x = -4$
Ex 3: Story Problems

The school band is selling sweatshirts and T-shirts to raise money. The goal is to raise $3464. Sweatshirts sell for $12 each and T-shirts sell for $8 each. Describe the number of sweatshirts and T-shirts the band can sell to reach the goal. Graph the equation.

\[ X = \text{Sweatshirts} \]
\[ Y = \text{T-Shirts} \]

\[ 12x + 8y = 3464 \]
\[ 12(0) + 8y = 3464 \]
\[ 8y = 3464 \]
\[ y = 433 \]
## Partner Graphing:

<table>
<thead>
<tr>
<th></th>
<th>Partner A</th>
<th></th>
<th>Partner B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Find x intercept</td>
<td>3x – 4y = -12</td>
<td>Find y intercept</td>
<td>3x – 4y = -12</td>
</tr>
<tr>
<td>Find y intercept</td>
<td>x – 7y = 14</td>
<td>Find X intercept</td>
<td>x – 7y = 14</td>
</tr>
<tr>
<td>Find x intercept</td>
<td>-3x + 6y = 18</td>
<td>Find y intercept</td>
<td>-3x + 6y = 18</td>
</tr>
</tbody>
</table>

*Both partners should graph each equation!*
Daily Sheet # 10