11/14/2005

Final Exam on MATH 106 CC

Friday, Dec 16
12:30 - 2:30
PH 112
Graph:
\[ y = 2x + 1 \]

A solution to this equation is an \( x \) value paired with a \( y \) value that makes the equation true.

\[ y = 2x + 1 \]

\[ (x, y) \]

If \( x = 0 \), then \( y = 2(0) + 1 = 1 \) \( (0, 1) \)

<table>
<thead>
<tr>
<th>( x )</th>
<th>( y )</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>-1</td>
<td>-1</td>
</tr>
</tbody>
</table>

The solution set is infinite:

\((0, 1), (1, 3), (2, 5), (-1, -1) \ldots\)

Graph this solution.

(Picture)
Graph \( y = 2x + 1 \)

- Point \((1,3)\) on the line
- Point \((-1,-1)\) on the line
- Point \((0,1)\) on the line
- Point \((2.5, 5)\) on the line

\[ x = \frac{1}{2} \]
\[ y = 2 \left( \frac{1}{2} \right) + 1 \]
\[ y = 2 \]
Let $y = 0$, solve for $x$.

Let $x = 0$, solve for $y$. 

$x$-intercept

$y$-intercept
Ex: Graph

\[ 2x + 3y = 6 \]

<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

\[ 2x + 0 = 6 \quad \rightarrow \quad x = 3 \]
\[ 0 + 3y = 6 \quad \rightarrow \quad y = 2 \]
Graph:

$x = 2$

$x + a \cdot y = 2$

All points on a vertical line have the same $x$. 

<table>
<thead>
<tr>
<th>$x$</th>
<th>$y$</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>
Graph

\[ y = 3 \]
\[ 0 \cdot x + y = 3 \]

All points on a horizontal line have the same y-coordinate.
7.1
System of Linear Equations

7.1 (20)

Solve:

\( x + y = 4 \)
\( -x + y = -2 \)

Find all ordered pairs \((x, y)\) that make BOTH equations true.

Solve the graphing method.

1. \( x + y = 4 \)
   - \( x \)
   - \( y \)
   - \( 0 \)
   - \( 4 \)
   - \( 4 \)
   - \( 0 \)

2. \(-x + y = 2\)
   - \( x \)
   - \( y \)
   - \( 2 \)
   - \( 0 \)
   - \(-2 \)
   - \( 0 \)

\( x = 2 \)
\( x = -2 \)
The solution is (1,3)

When x = 1 and y = 3, both equations are true.

Check (1,3):
1. \(x + y = 4\)
   \[1 + 3 = 4\]
   True

2. \(-x + y = 2\)
   \[-1 + 3 = 2\]
   True
In a plane, 2 lines may:

- Intersect in exactly one point: 1 solution
- Parallel lines: No points of intersection; No Solution
- Same line: Infinite # pts of intersection; Infinite Sol.
Wednesday
Do those assigned

6.2
1.1