Forms of Lines

1. Slope-intercept Form

\[ y = mx + b \]

M is the slope, while y is the y-intercept

Step 1: Plot the y-intercept on the coordinate Plane.
Step 2: Count the slope from that point.
Step 3: Connect the dots.

Ex. \[ y = 2x + 4 \]

Special Case: Direct Variation (where \( b=0 \))
\[ y = kx, \text{ } k \text{ is the constant of variation (like } m) \]
This only occurs when the y-intercept is the origin (0,0).

2. Standard Form

\[ Ax + By = C \]

Step 1: Find the x- and y-intercepts
Step 2: Plot and Connect
Ex. \[ 3x + 4y = 12 \]

<table>
<thead>
<tr>
<th>X</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>
3. **Point-Slope Form**

\[ y - y_1 = m(x - x_1) \]

- \(M\) is the slope.
- \(x_1\) and \(y_1\) are coordinates of a point given on the graph.

**Step 1:** Plot the point \((x_1, y_1)\)

**Step 2:** Count the slope.

**Step 3:** Connect the dots.

Ex. \(y - 2 = 2(x - 1)\)