Writing and Graphing Inequalities – Notes

Writing Inequalities
Step 1: Identify the variable. What are you trying to calculate?
Step 2: Convert all words possible to mathematical symbols.

<table>
<thead>
<tr>
<th>+</th>
<th>-</th>
<th>×</th>
<th>÷</th>
<th>&gt;</th>
<th>≥</th>
<th>&lt;</th>
<th>≤</th>
</tr>
</thead>
<tbody>
<tr>
<td>sum</td>
<td>Difference</td>
<td>Multiply</td>
<td>Divide</td>
<td>Greater than</td>
<td>Greater than or equal to</td>
<td>Less than</td>
<td>Less than or equal to</td>
</tr>
<tr>
<td>altogether</td>
<td>Subtract</td>
<td>Product</td>
<td>Quotient</td>
<td>At least</td>
<td>No more than</td>
<td></td>
<td></td>
</tr>
<tr>
<td>more than</td>
<td>Less than</td>
<td>of</td>
<td>Separated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>plus</td>
<td>Decreased by</td>
<td>Times</td>
<td>Grouped</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>add</td>
<td>Minus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>increased by</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Step 3: Solve the mathematical inequality.

Graphing Inequalities
When graphing inequalities, follow the steps below:
Example: \( x > 6 \)
Step 1: Create a number line to include the solution.

```
-10  -5  0  5  10
```

Step 2: Circle the solution. If the solution includes \( ≥ \) or \( ≤ \), fill in the circle. If it includes \( < \), \( > \) then you are to leave the circle empty.

```
-10  -5  0  5  10
```

Step 3: Draw an arrow depicting all possible solutions. If it is \( < \) or \( ≤ \), the arrow with go the left. If it is \( > \) or \( ≥ \), the arrow will go to right.

```
-10  -5  0  5  10
```