**Linear Inequalities**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

When graphing linear inequalities the boundary line is dotted when the inequality sign is \_\_\_\_ or \_\_\_\_.

The boundary line is solid when the inequality sign is \_\_\_\_ or \_\_\_\_.

You shade above the boundary line when y is \_\_\_\_ or \_\_\_\_ the boundary line.

You shade below the boundary line when y is \_\_\_\_ or \_\_\_\_ the boundary line.

If you are unsure as to what section of the graph is above and what section is below the boundary line then you can use a test point. This is when you pick a point somewhere on the coordinate plane and plug it into the inequality. If the inequality makes a true statement, then the side of the boundary line that contains that point gets shaded.

The solution to a system of inequalities is where the shaded section of each inequality overlaps.

Examples:

Graph the solution to the following inequalities

1. $y\geq 3x+2$
2. $y<-\frac{1}{3}x-6$
3. $y\leq x$
4. $y>-5x+1$

Graph the solution to the following systems of inequalities

1. $y<3x+2$

$$y\geq -2x-4$$

1. $y>x+1$

$$y\geq -6x+3$$

Independent Practice

Graph the solution to the following inequalities

1. $y\geq -2x+5$
2. $y<-4x+3$
3. $y\leq \frac{1}{2}x+2$
4. $y>x-1$

Graph the solution to the following systems of inequalities

1. $y>4x+1$

$$y\geq -5x-3$$

1. $y\leq 2x-4$

$$y\geq 6x+2$$