Linear Inequalities in Two Variables

Objective: To graph linear inequalities in two variables.

Review -- Graphing a Line
1. Put in $y = mx + b$ form. (or if in “convenient” standard form, use x & y –intercepts.)
2. Plot the y-intercept.
3. Use the slope and rise/run to plot at least 2 more points.
4. Draw the line.

Steps for Graphing Inequalities
FOR INEQUALITIES:
< or > dashed line
≥ or ≤ solid line

1. Put in ______________ form and graph the line, dashed or solid.
2. Test a point, __________, to see if it makes a true statement.
3. If true, shade on the side of the line that ______ the test point.
4. If false, shade on the side of the line that does ______ contain the test point.

Steps for Graphing Intersection or Union of Two Inequalities
1. Graph the first inequality.
2. Test a point and shade accordingly.
3. Graph the second inequality on the __________ coordinate plane.
4. Test a point and shade accordingly.
5. For intersection, final answer should have only the common areas shaded. To check: Pick any point in the commonly shaded area and check it in __________ inequalities.
   1. For “union”, all of the shaded area is the solution. Any point in the shaded area should “work” in at least _______ of the inequalities.
Example of Intersection
- \( x - y \geq 2 \) and \( x \geq 3 \)

Example of Union
- \( x + 3 \leq y \) or \( y \geq 3 \)