Toolkit: Graphing Linear Inequalities

You can use a graph to model linear inequalities like $y < 2x - 10$ *or* $y \geq 2x - 10$

The graph of a linear inequality includes the region above or below the line depending on whether the inequality includes a greater than or less than symbol.

Step 1. Imagine the inequality symbol is an " = " and identify the slope and y-intercept.

Step 2 Plot points to set up your graph based on the slope and y-intercept.

Step 3: Connect the points with the appropriate type of line.

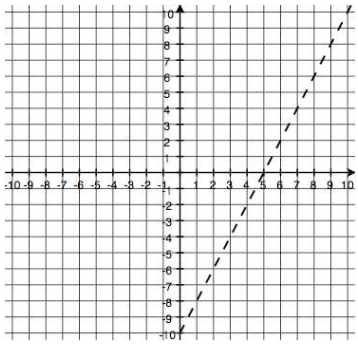
A <u>solid line</u> means that the points on the line are included in the solution. This type of line is used for _____ 

A <u>dashed line</u> means that the points on the line are not included in the solution. This type of line is used for _____

Step 4. Shade the region of the graph that represents the solution.

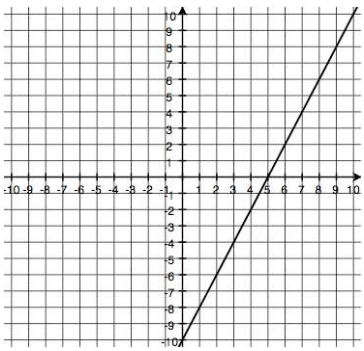
For y is < (less than) or y ≤ (less than or equal to)

shade _____ the line.



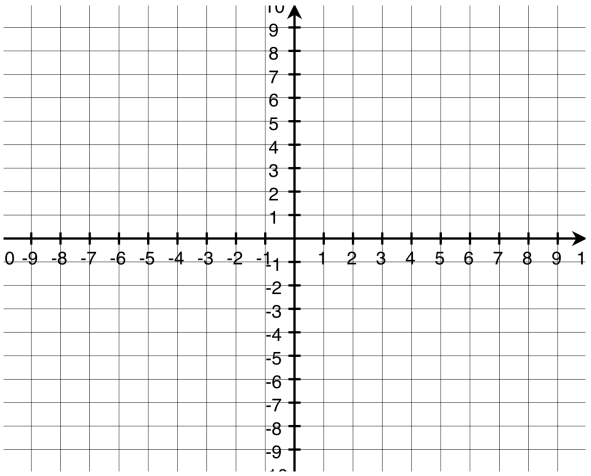
For y is > (greater than) or y ≥ (greater than or equal to)

shade _____ the line.



Practice:

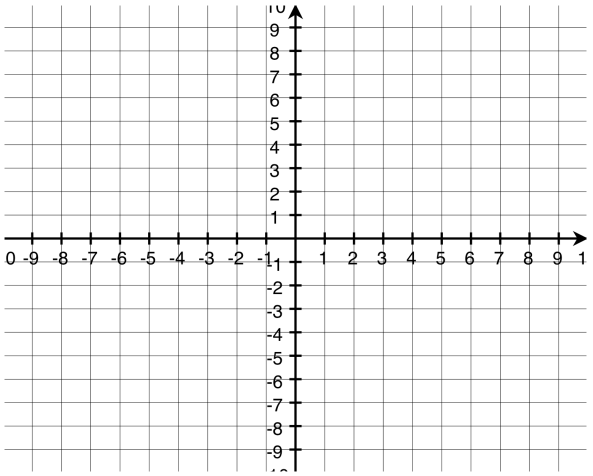
1) Graph $y < 8 - \frac{5}{3}x$ on the coordinate axis provided.



Use a _____ line because …

Shade _____ the line because…

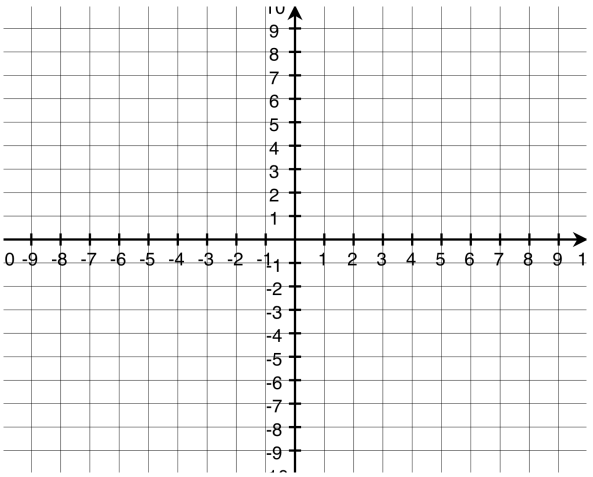
2) Graph $y \leq 2x + 4$ on the coordinate axis provided.



Use a _____ line because …

Shade _____ the line because…

3) Graph $y > \frac{1}{2}x - 6$ on the coordinate axis provided.



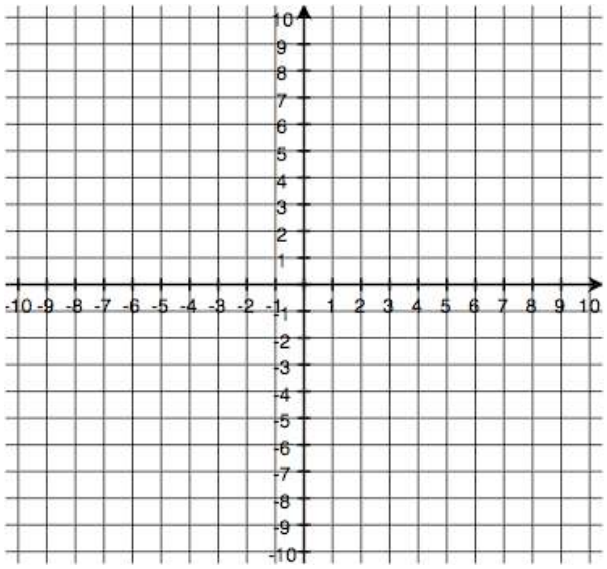
Use a _____ line because …

Shade _____ the line because…

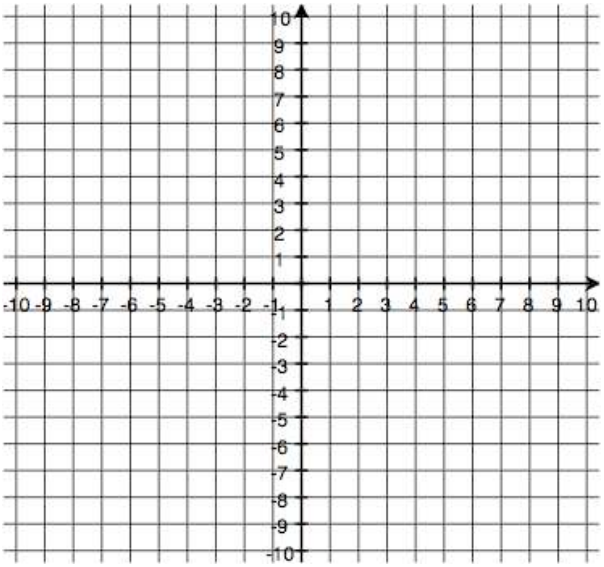
IM 1 Investigation 3.2.2 Day 4 Alternate **Name** _____

Accurately draw the graph of each of the following inequalities without using your calculator. If the equation is in standard form, change it to slope-intercept form first. Show all calculations.

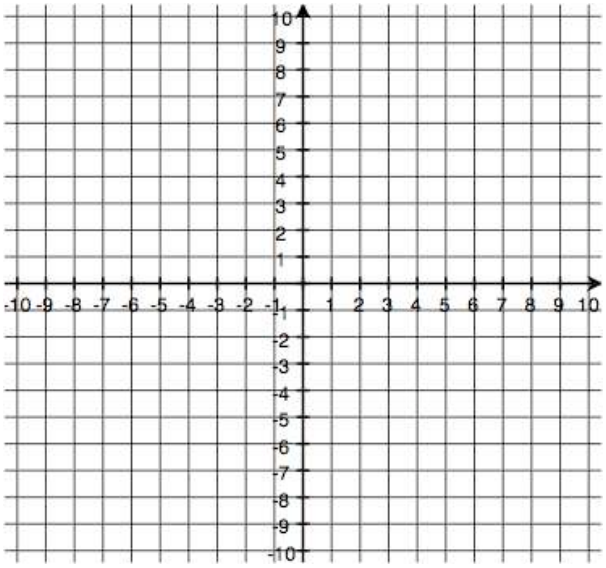
1) $y > -2x - 1$



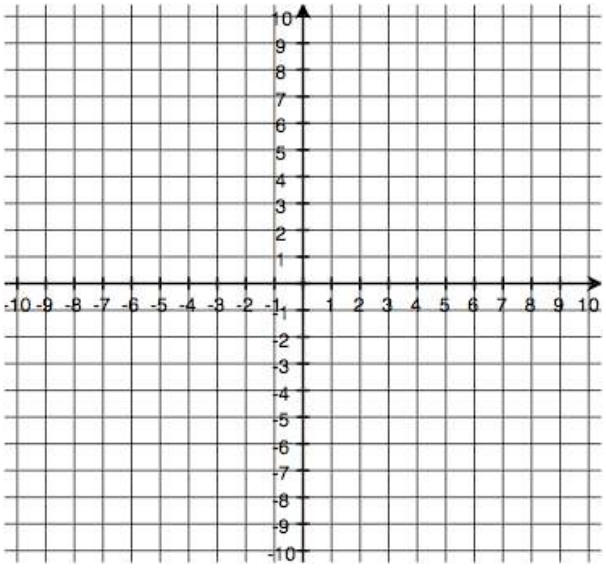
2) $y \leq -\frac{3}{2}x + 10$



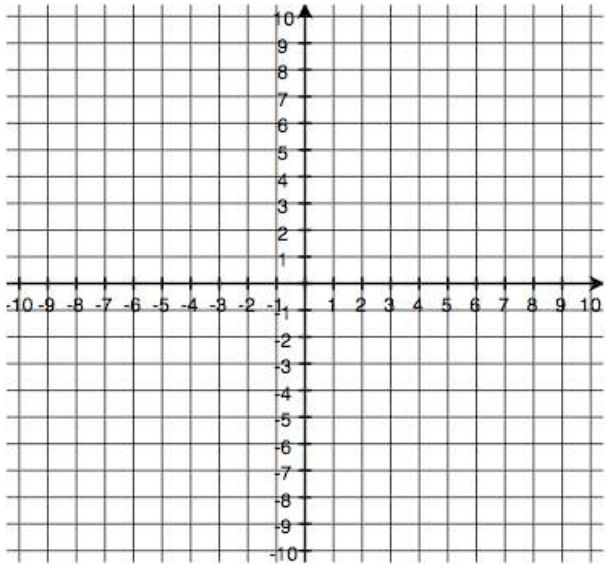
3) $y \geq 3x - 6$



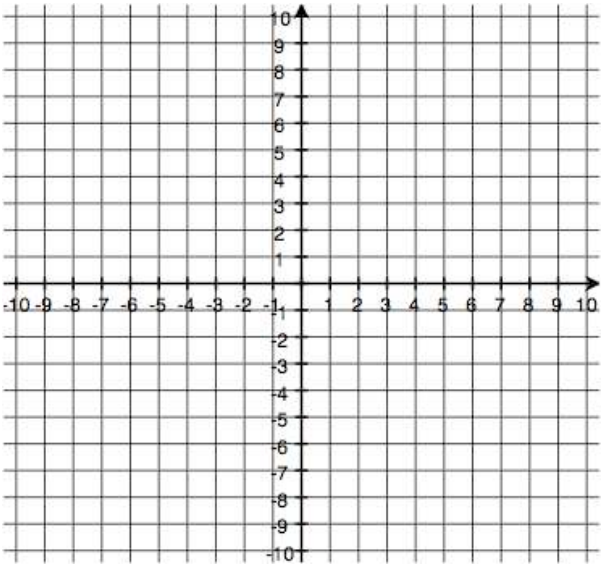
4) $y < \frac{2}{5}x + 4$



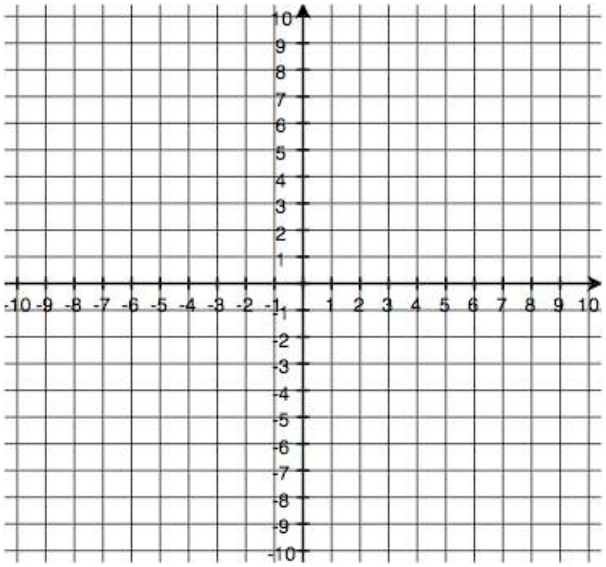
5) $-3x + 4y \leq -16$



6) $3x + 6y < 12$



7) $2x + 8y > -16$



8) $-2x + 5y \geq 40$