

“Graphing linear inequalities”

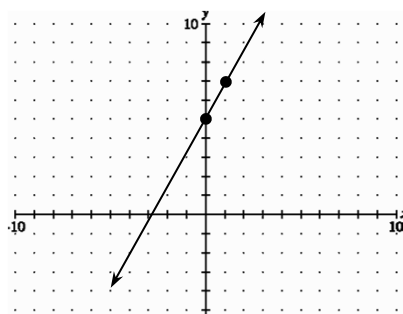
Reminder:

When graphing lines, plot 2 points and then draw a line through them. In the case of $y = 2x + 5$, plot the y-intercept of $(0, 5)$, then apply the slope (rise 2, run 1) and plot the point $(1, 7)$.

For linear inequalities, the procedure is the same with a few minor changes to represent the inequality.

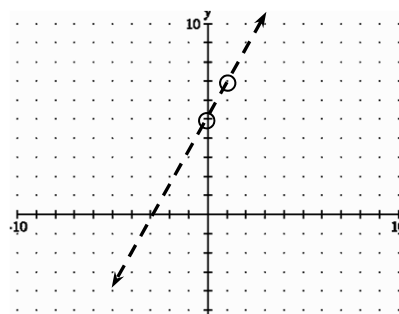
Ex. 1

Graph: $y = 2x + 5$



equal

Graph: $y \neq 2x + 5$

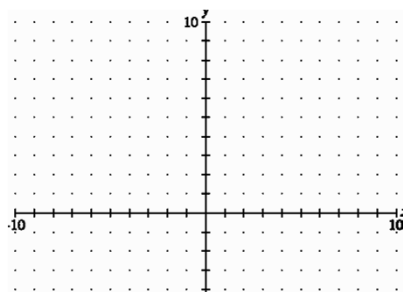


not equal

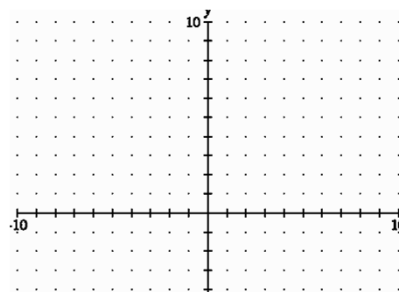
Note: The equality gets a solid line and the “inequality” gets a dashed line.

“YOU TRY”

Graph: $y = 3x + 2$



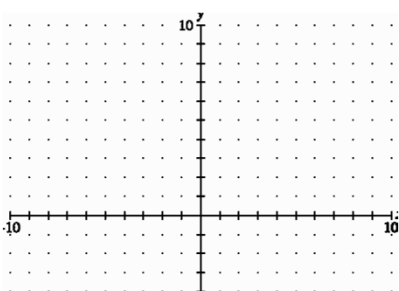
Graph: $y \neq 3x + 2$



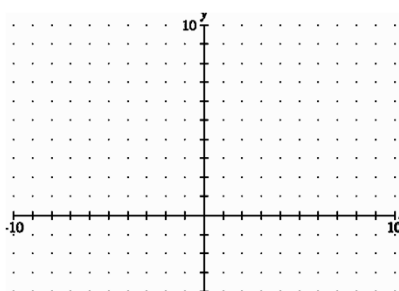
~Practice~

Graph the following equations:

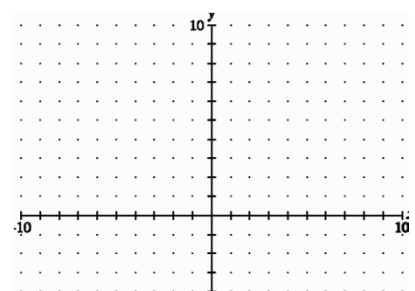
1a) $y \neq \frac{1}{2}x + 3$



2a) $y = 5x - 3$



3a) $y \neq -2x + 7$



For inequalities, you are looking for the graph of the line and a region that represents the particular inequality. (Greater than or Less than)

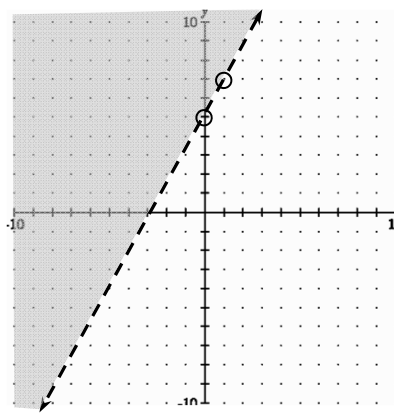
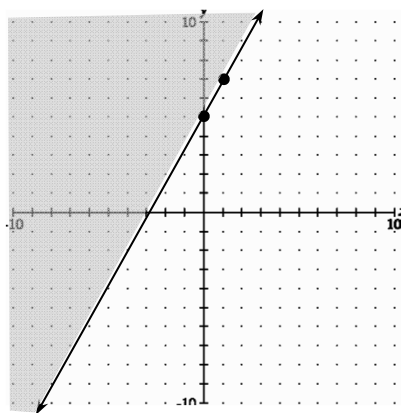
Ex. 2

“Greater Than”

Graph:

$$y \geq 2x + 5$$

$$y > 2x + 5$$



Note: for $>$ all values greater than the line are shaded.

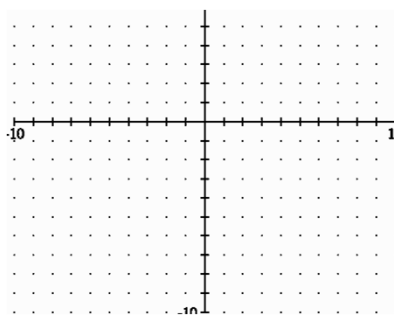
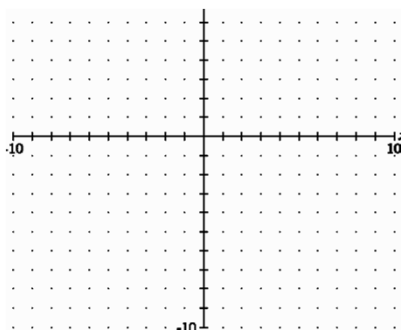
Note: when the symbol includes both an inequality and an equal sign, the graph has a solid line and is shaded.

“YOU TRY”

Graph:

$$y \geq 5x - 3$$

$$y > 5x - 3$$



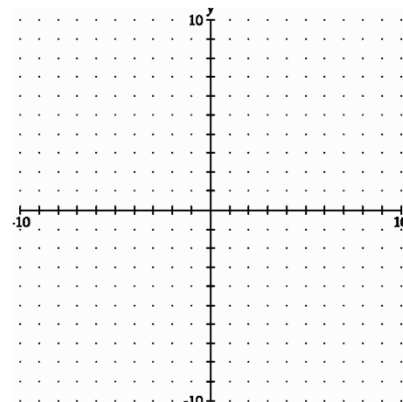
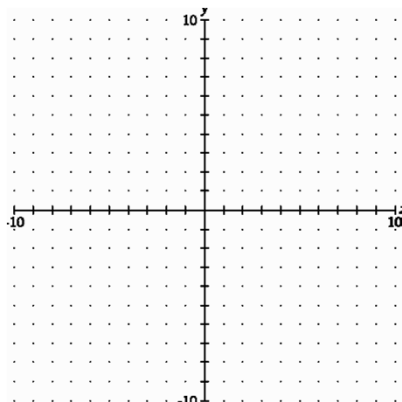
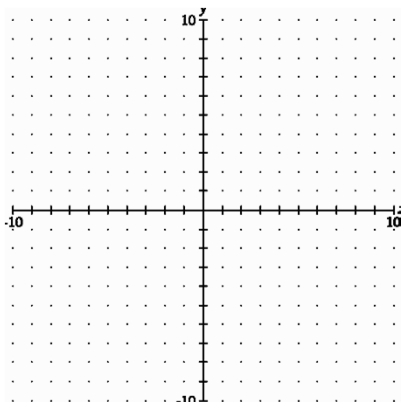
~Practice~

Graph the following equations:

1b) $y \geq \frac{1}{2}x - 2$

2b) $y > 2x - 6$

3b) $y \geq -x + 2$



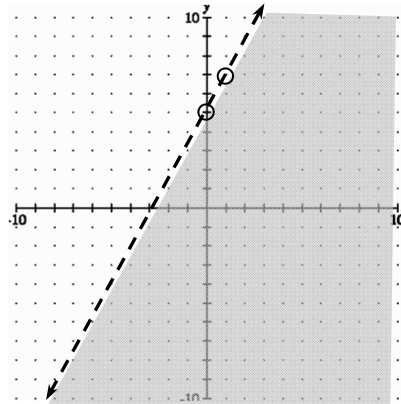
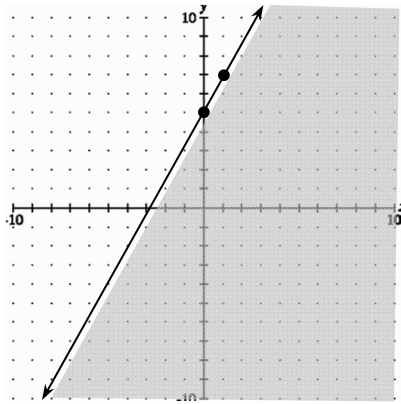
Ex. 3

Graph:

$$y \leq 2x + 5$$

“Less Than”

$$y < 2x + 5$$



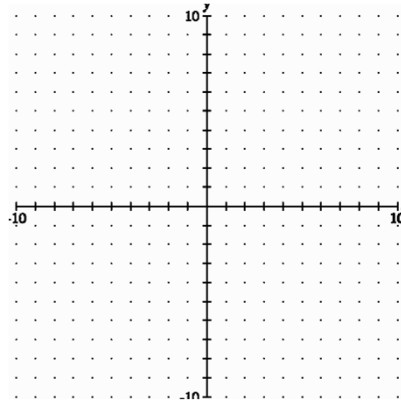
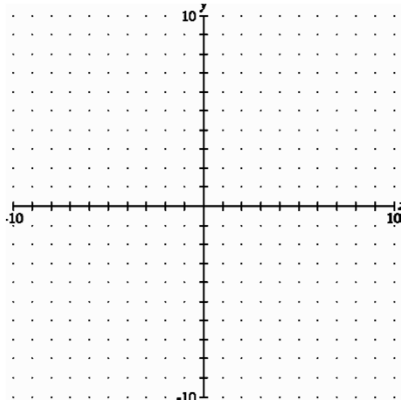
Note: for $<$ all values lesser than the line are shaded.

“YOU TRY”

Graph:

$$y \leq x - 5$$

$$y < x - 5$$



~Practice~

Graph the following equations:

1c) $y \leq \frac{2}{3}x + 1$

2c) $y < 3x - 4$

3c) $y \leq -3x + 3$

