

Section 6.5 Graphing Linear Inequalities in Two Variables

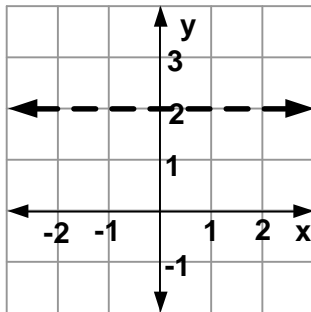
When you graph linear equations you get a line containing all of the ordered pairs that satisfy the equation. When you graph a linear inequality you get an area bounded by a line. The area contains all of the points that satisfy the inequality.

The steps for graphing an inequality follow:

1. Graph the corresponding equation but use a dashed line if it is $>$ or $<$ and a solid line if it is $=$ or $=$.
2. Test a point that is not on the line to find out which side of the line should be shaded.
3. If the tested point is true, shade that side of the line. If the tested point is false, shade the other side of the line.

Example 1: Graph $y > 2$

First, graph $y = 2$ with a dashed line.

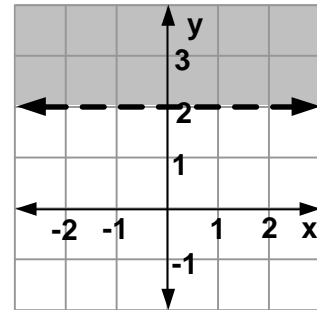


Second, test $(0,0)$.

Is $0 > 2$?

False

Third, shade above because $(0,0)$ failed.

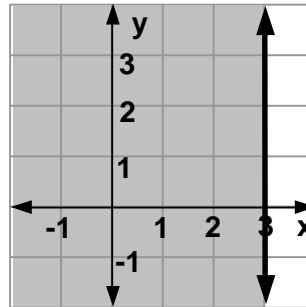


Example 2: Graph $x = 3$

First, graph $x = 3$ with a solid line.

Second, test $(0,0)$. Is $0 = 3$? True

Third, shade area containing $(0,0)$.



Example 3: Graph $y > 3x$

1. Graph $y = 3x$ with a dashed line
2. Test $(0,0)$ – can't because line goes through it.
Test $(1,0)$: $0 > 3(1)$ which is false.
3. Shade the other side of the line.

