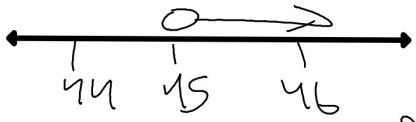
Graph each on a number line.

$c \leq -1$

$r > 45$



$-11 \leq w$

The graph of an inequality on a number line is

a dot (open or closed)

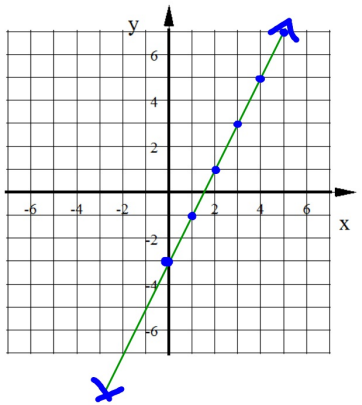
this is the starting point it makes the two sides EQUAL

AND

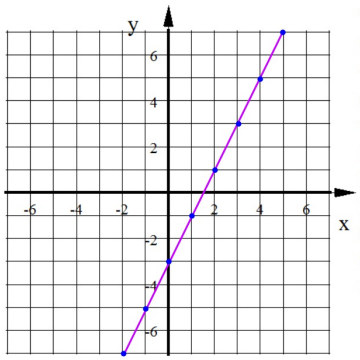
a direction (arrow pointing right or left)

This indicates all the numbers that make the INEQUALITY true

Graph $y = 2x - 3$

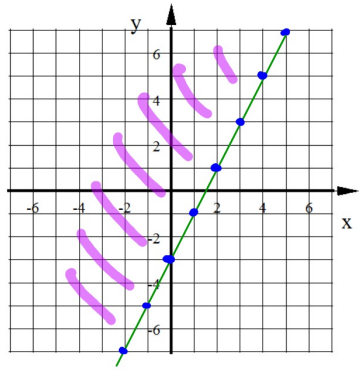


Graph $y = 2x - 3$



The difference between these two is that the equation is only the line and the inequality is a line and all the points on one side of the line (the solution region).

Graph $y \geq 2x - 3$



The graph of a Linear Inequality is

A line (dashed or solid)

Points on the line make the two sides =

Used Dashed if you see > or <

Used Solid if you see ≥ or ≤

AND

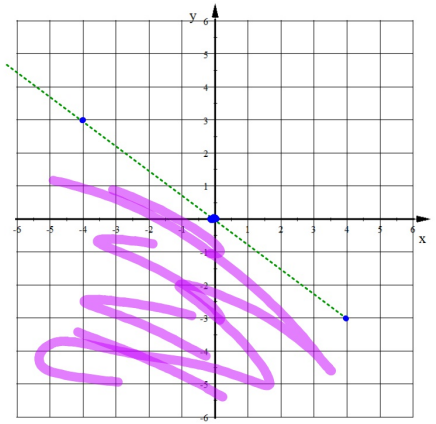
A direction

Shade the area on one side of the line to show what points make the INEQUALITY true.

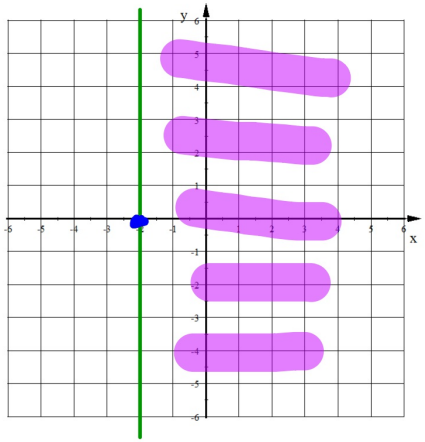
How do you decide which side of the line to shade?

One Method	OR	Another Method
If equation is in "y=" Form: "y is greater..." means shade above "y is less..." means shade below		• Pick any point NOT on the graph • Plug in those coordinates • If coordinates make a True statement then shade the side with that point. • If coordinates DON'T make a true statement shade the other side.

1. $y < -\frac{3}{4}x$



2. $x \geq -2$



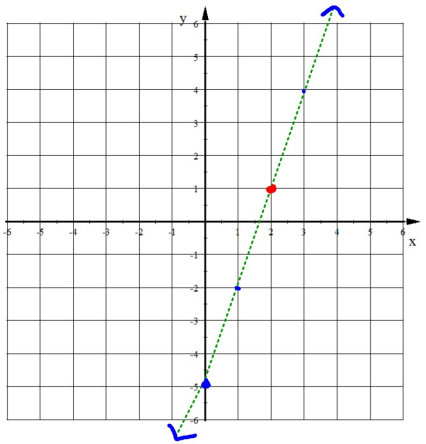
3. $y - 1 > 3(x - 2)$

You could change the equation into Slope-Intercept Form then graph it that way

$y - 1 > 3x - 6$

$+1 \quad +1$

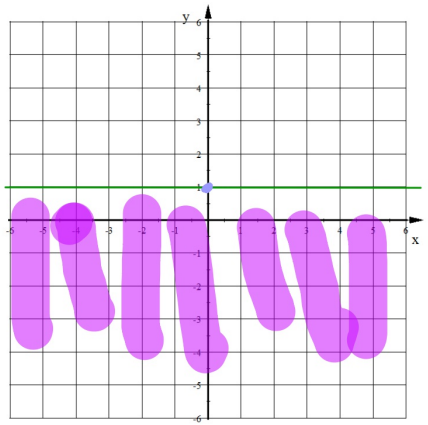
$y > 3x - 5$



Or, you could turn the eq back into the point and the slope that were used to write the equation. Then you could plot that point and use the slope to find more points.

$(2, 1)$ $m = 3$

4. $y \leq 1$



Graph this inequality

$12x - 30y \leq 60$

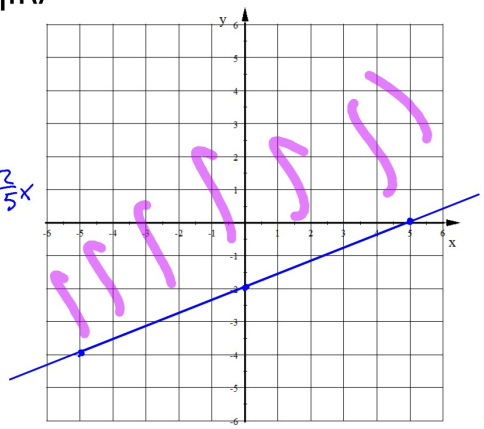
Method 1:

Step 1: Rewrite equation into Slope-Intercept Form

$y \geq \frac{60 - 12x}{-30} \quad -2 + \frac{2}{5}x$

Step 2: Plot points and connect with the correct kind of line

Step 3: Shade the correct side since the inequality is "y is greater" you shade above the line.



5. $12x - 30y \leq 60$

Method 2:

Step 1: Find the x & y-intercepts & plot them on the axes.

x-int = 60/12 = 5

y -int = 60/-30 = -2

Step 2: Connect with the correct kind of line.

Use a Solid Line

Step 3: Test the origin.

If the origin "works" shade THAT side. If the origin doesn't "work" shade the other side of the line.

$12(0) - 30(0) \leq 60$

$0 \leq 60$

This is true, therefore, the origin is on the side you should shade.