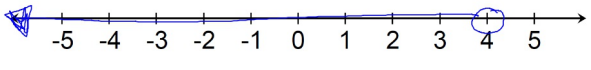
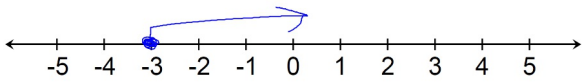
Graph each inequality on a number line.

1. $4 > x$



2. $w \geq -3$



Number line graph: Starting point and a direction.

Is number included?

Yes: shaded circle

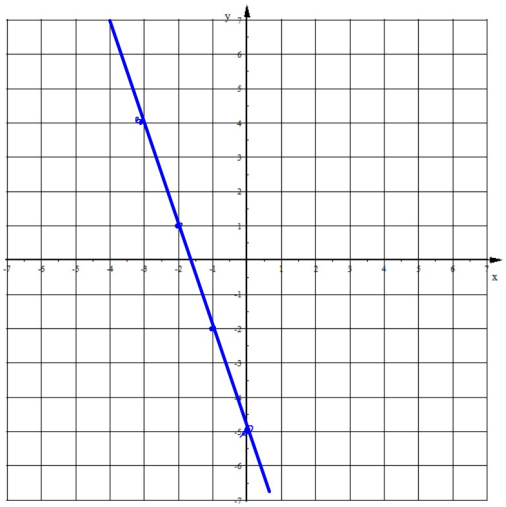
No: open circle

Left or Right

Get a sheet of graph paper and a ruler. Graph each line.

1. $y = -3x - 5$
2. $6x - 8y = 24$
3. $y - 1 = 4(x - 5)$
4. $x = -2$
5. $y = \frac{1}{4}x$
6. $y = 3$

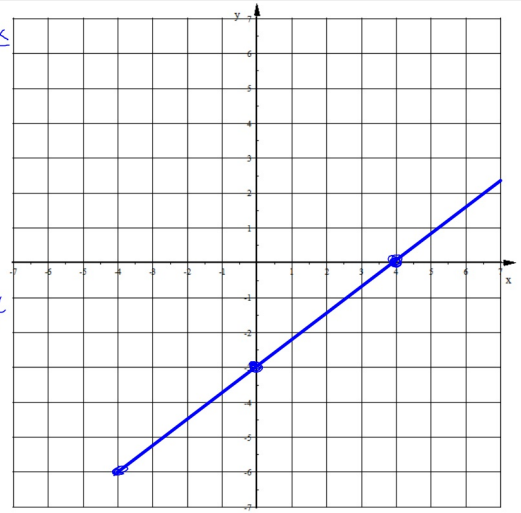
1. $y = -3x - 5$



2. $6x - 8y = 24$

$\frac{-6x}{-8} \quad \frac{-6x}{-8}$

$y = -3 + \frac{3}{4}x$



x-int $= \frac{24}{6} = 4$

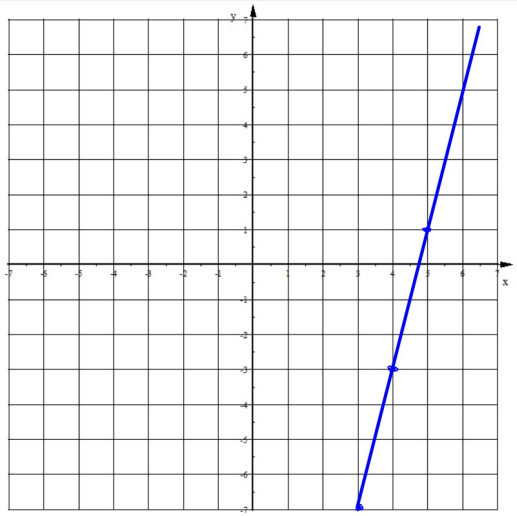
y-int $= \frac{24}{-8} = -3$

3. $y - 1 = 4(x - 5)$

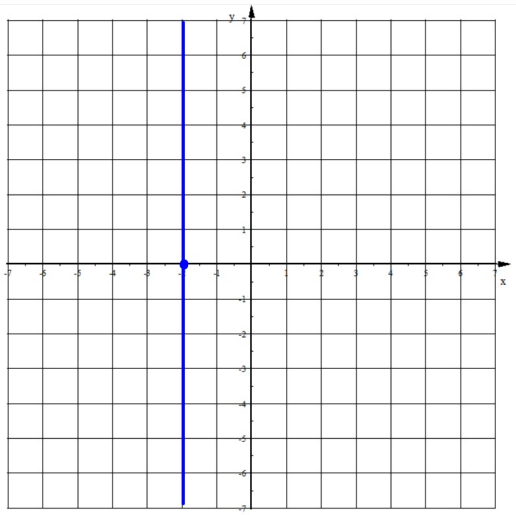
$y - 1 = 4x - 20$

$+1 \quad +1$

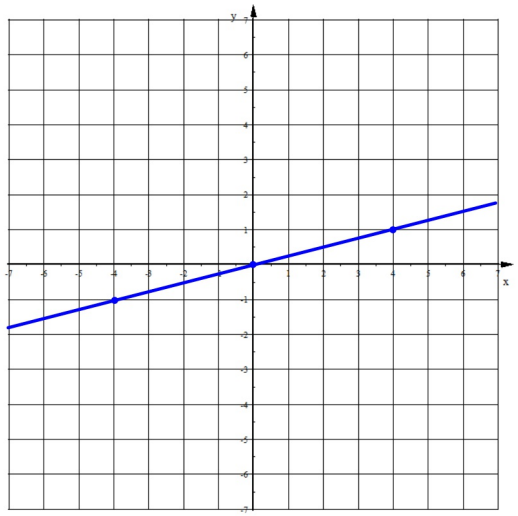
$y = 4x - 19$



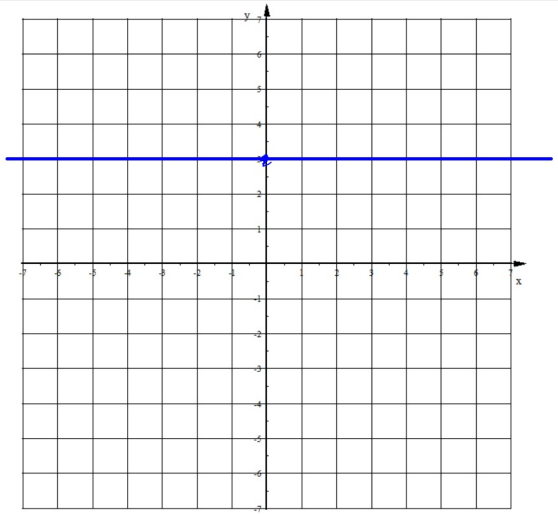
4. $x = -2$



5. $y = \frac{1}{4}x$

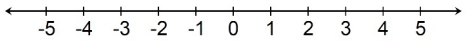


6. $y = 3$



Graphing Inequalities
on a number line:

$w \geq -1$



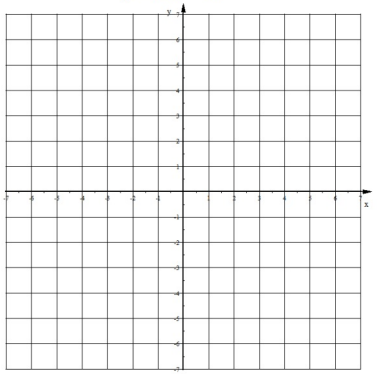
A starting point and a direction

Open circle (< or >)
or
closed circle (≤ or ≥)

Left or Right.

Graphing Linear Inequalities on the x-y plane:

$y \geq 2x - 3$



A "Starting Line" and a direction.

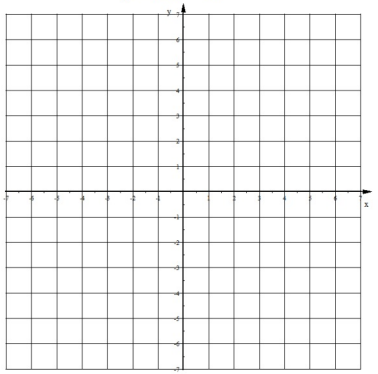
Dashed Line
or
Solid Line

Also known as
the Boundary Line

Shade the area on
one side of the line
or on the other side.

Also known as
the Solution Region

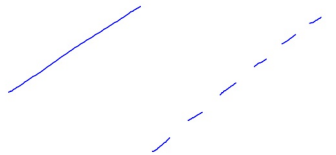
$y \geq 2x - 3$



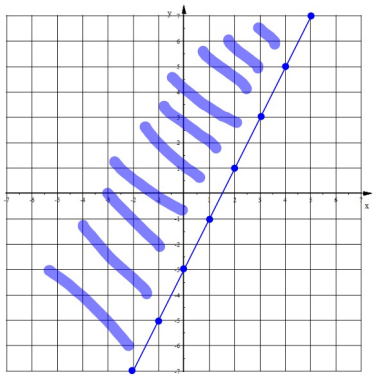
Graphing the Boundary Line

- Put points on the graph to represent the location of the line.
- Connect the points with either a

Solide Line (≤ or ≥) or Dashed Line (< or >)



$y \geq 2x - 3$



Which side of the line do you shade?

Method 1: Pick any point NOT on the line and see it makes the inequality true.

- If Point makes inequality true: Shade that side.
- If Point makes inequality false: Shade other side.

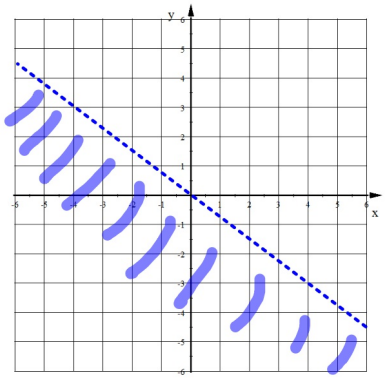
Method 2: Works only if inequality is in Slope-Intercept Form

- If you say "y is greater..." shade ABOVE the line.
- If you say "y is less..." shade BELOW the line.

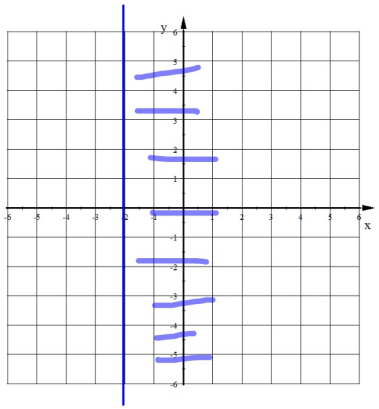
Graph each inequality on the x-y plane.

1. $y < -\frac{3}{4}x$
2. $x \geq -2$
3. $y - 1 > 3(x - 2)$
4. $y \leq 1$

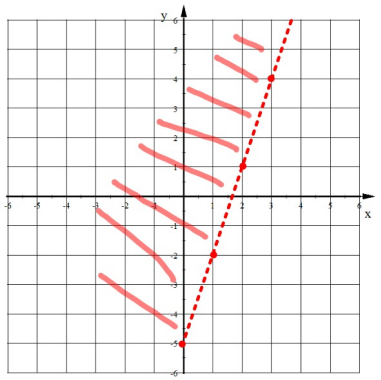
1. $y < -\frac{3}{4}x$



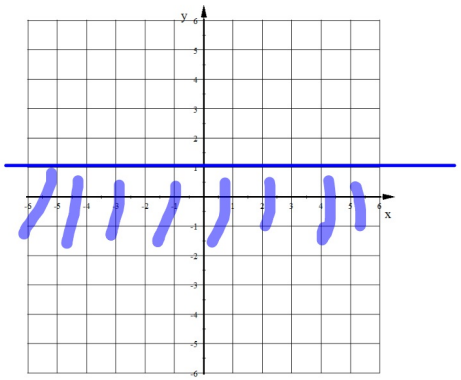
2. $x \geq -2$



3. $y - 1 > 3(x - 2)$ → $y > 3x - 5$



4. $y \leq 1$

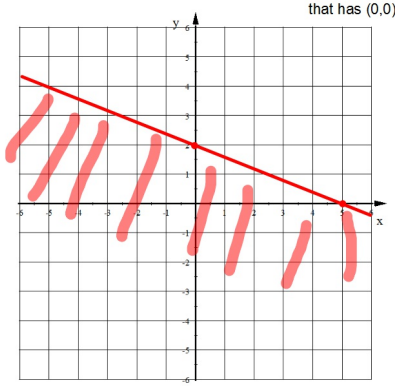


Graph each inequality.

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

x-int = 60/12=5
y-int=60/30=2

Test (0,0): 12(0)+30(0)≤60 becomes 0≤60 since this is true shade the side that has (0,0)



6. $8x - 6y > 24$

x-int = 24/8 = 3
y-int = 24/-6 = -4

Test (0,0): 8(0) - 6(0) > 24 becomes 0 > 24 since this is false shade the side that DOES'T have the origin.