When in Slope-Intercept Form:

Shade above line if:

the inequality is either

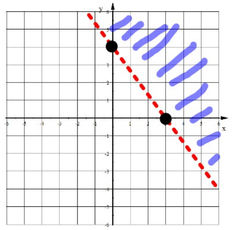
y > or y ≥

Shade below line if:

the inequality is either

y < or y ≤

$8x + 6y > 24$



Find x & y intercepts:

xint = 24/8 = 3

yint = 24/6 = 4

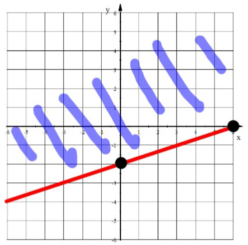
Test the origin to see if it makes the inequality true:

8(0) + 6(0) > 24

0 > 24

This is not true, therefore, the side with the origin is NOT the solution region.....Shade the other side.

12x - 36y ≤ 72



Find x & y intercepts:

xint = 72/12 = 6

yint = 72/-36 = -2

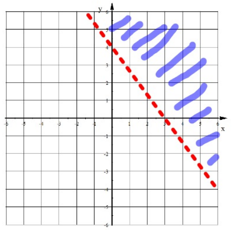
Test the origin to see if it makes the inequality true:

12(0) - 36(0) ≤ 72

0 ≤ 72

This is true, therefore, the side with the origin IS the solution region....shade that side.

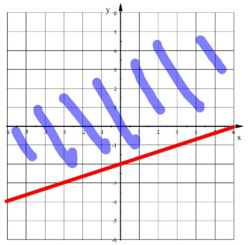
$8x + 6y > 24$



Inequalities in Standard Form

In this case > ended up telling us to shade above the line, the same as if it were in Slope-Intercept Form.

12x - 36y ≤ 72



In this case ≤ didn't tell us to shade below as it would if it were in Slope-Intercept Form.

When in Standard Form:

Will you shade above or below the line?

1. $9x + 4y > 36$ ABOVE
2. $12x - 8y \le 24$ ABOVE
3. $-10x + 20y < 40$ Below
4. $2x + 3y \ge -12$ ABOVE
5. $-6x - 9y > -72$ Below

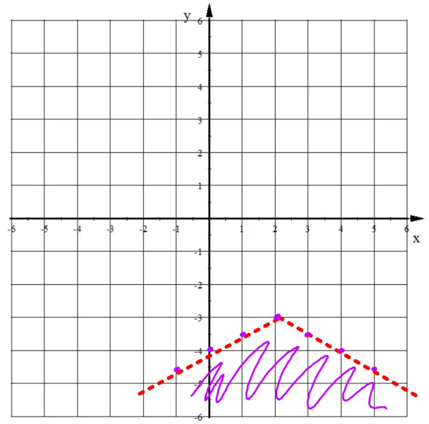
as you can see, in Standard Form the inequality doesn't always tell you the direction to shade like it does in Slope-Intercept Form. But, since the last step in changing an equation from Standard Form to Slope-Intercept Form is to divided by the coefficient of y there are two things to consider:

If the coefficient of y is positive the inequality WON'T flip.
If the coefficient of y is negative the inequality WILL flip.

10.

$y < -0.5|x - 2| - 3$

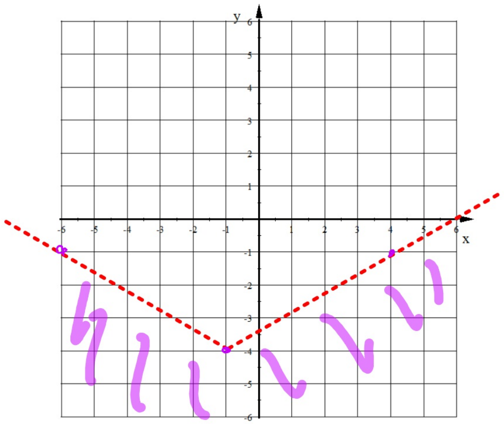
$-\frac{1}{2}$



$y < 0.6|x + 1| - 4$

$\frac{6}{10}$

$\frac{3}{5}$



Is each point below a solution to this inequality? $y > 2x - 4$

You can substitute the point into the inequality to see if it makes the inequality true or not.

1. (4, 1)

$1 > 2(4) - 4$
$1 > 8 - 4$
$1 > 4$

This is not true, therefore, (4,1) is NOT a solution.

2. (-1, 1)

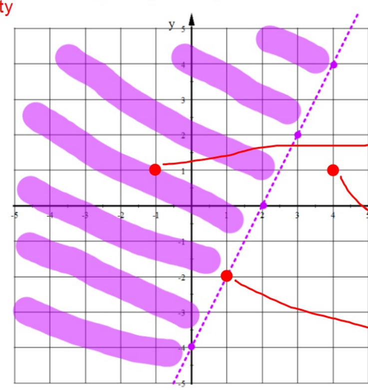
$1 > 2(-1) - 4$
$1 > -2 - 6$
$1 > -8$

This is true, therefore, (-1,1) IS a solution.

3. (1, -2)

$-2 > 2(1) - 4$
$-2 > 2 - 4$
$-2 > -2$

This is not true, therefore, (1,-2) is NOT a solution.



OR

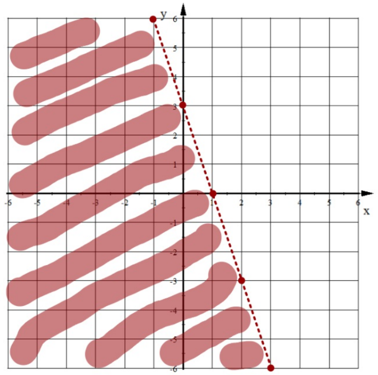
Plot each point

Since (-1,1) is in the shaded area it IS a solution.

Since (4,1) is not in the shaded area it's NOT a solution

(1, -2) is on the line but the line is dashed, therefore it is NOT a solution

Write the inequality shown in the graph below.

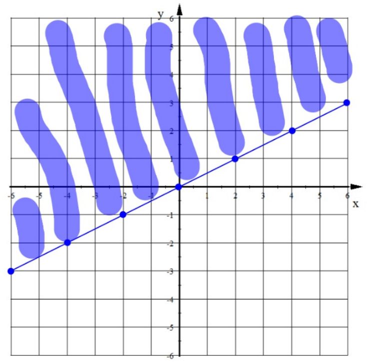


since the line is dashed and shaded area is below the line the inequality starts with y <

The slope is -3 and the y-intercept is 3, therefore, the inequality is:

$y < -3x + 3$

Write the inequality shown in the graph below.

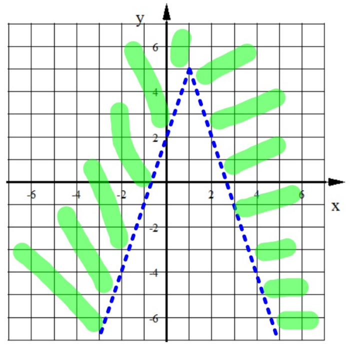


since the line is solid and shaded area is above the line the inequality starts with y ≥

The slope is 1/2 and the y-intercept is 0, therefore, the inequality is:

$y \geq 1/2x$

Write the inequality shown in the graph.



since the v-shape is dashed and the shaded area is above the V, the inequality starts with y >

The Vertex is at (1,5) the V opens down, and the slope is 3:

$y > -3|x - 1| + 5$