



Graph the inequality. $5x - 3y < 15$

Step 1.

Find the x-intercept.
($y=0$)



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$$5x - 3y = 15$$
$$5x - 3(0) = 15$$

$$5x - 0 = 15$$

$$\frac{5x}{5} = \frac{15}{5}$$

$$x = 3$$

$$(3, 0)$$

Graph the inequality. $5x - 3y < 15$

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$$5x - 3(0) = 15$$

$$5x - 0 = 15$$

$$5x = 15$$

$$\frac{5x}{5} = \frac{15}{5}$$

$$x = 3$$

$$\text{x-int} = (3, 0)$$

Graph the inequality. $5x - 3y < 15$

Step 2.

Find the y-intercept.
($x=0$)

$$5x - 3y = 15$$
$$5(0) - 3y = 15$$

$$0 - 3y = 15$$

$$\frac{-3y}{-3} = \frac{15}{-3}$$

$$y = -5$$

$$(0, -5)$$



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Graph the inequality. $5x - 3y < 15$

Step 2.

Find the y-intercept.
($x=0$)



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$$\begin{aligned}5x - 3y &= 15 \\5(0) - 3y &= 15 \\0 - 3y &= 15 \\-3y &= 15 \\ \frac{-3y}{-3} &= \frac{15}{-3} \\y &= -5\end{aligned}$$

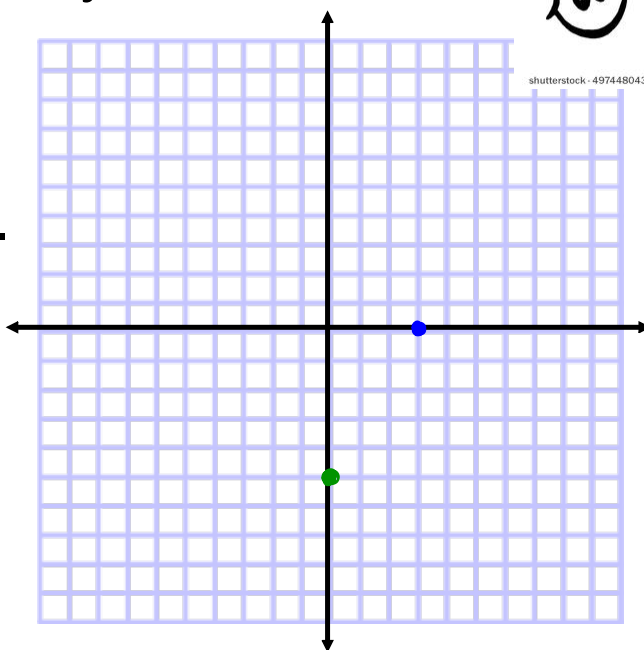
$$y\text{-int} = (0, -5)$$

Graph the inequality. $5x - 3y < 15$

Step 3.

Plot the intercepts.

- x-int = $(3, 0)$
- y-int = $(0, -5)$



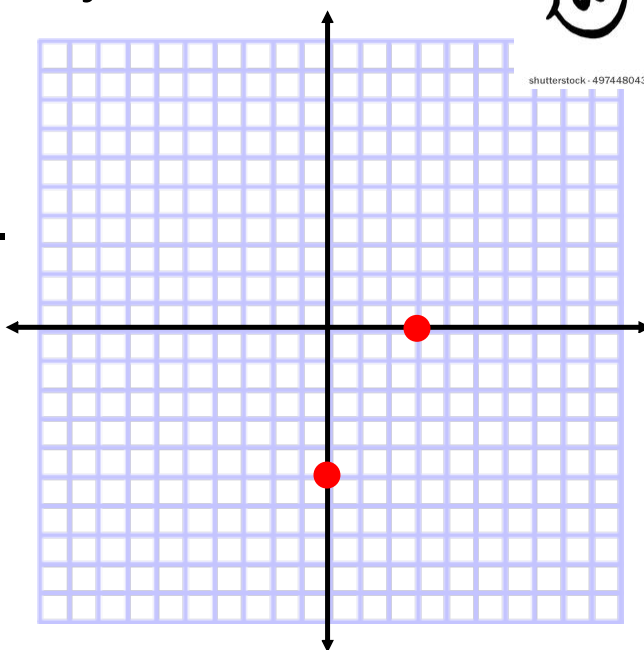
Graph the inequality. $5x - 3y < 15$

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Plot the intercepts.

$$x\text{-int} = (3, 0)$$

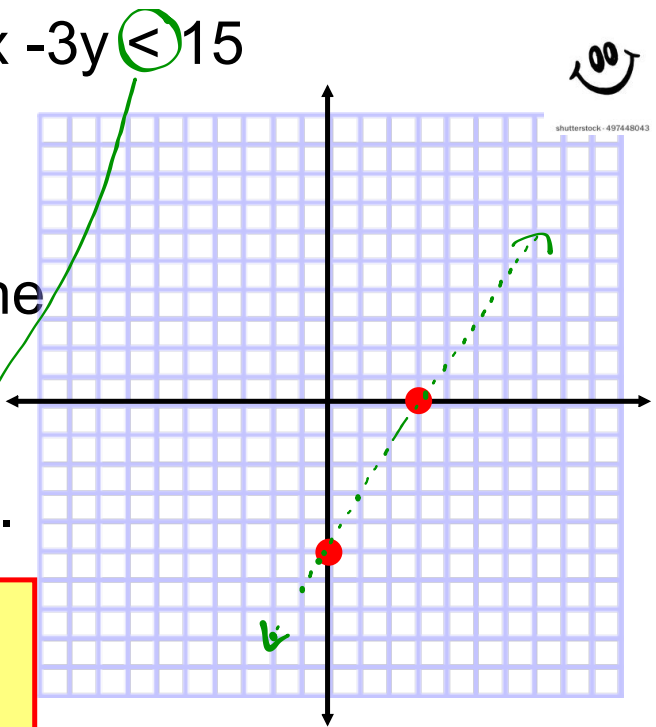
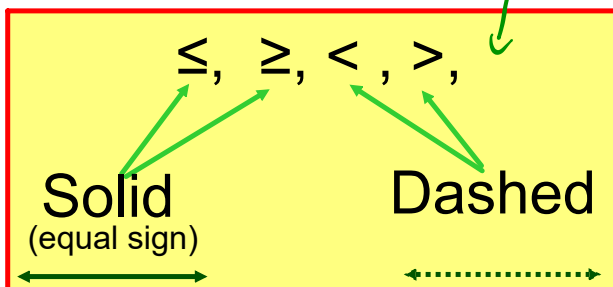
$$y\text{-int} = (0, -5)$$



Graph the inequality. $5x - 3y < 15$

Step 4.

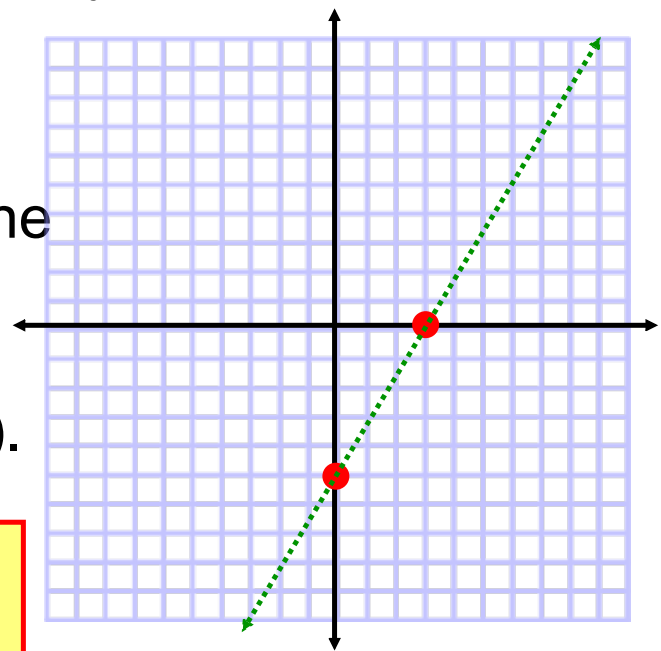
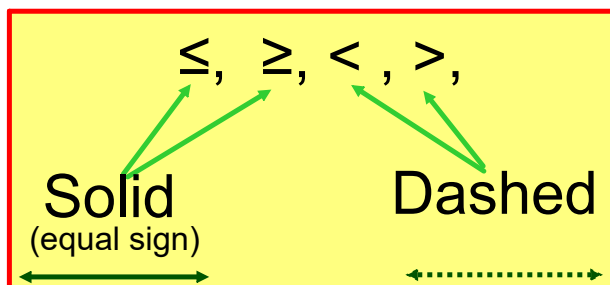
Determine if the line
will be solid
or dashed (dotted).



Graph the inequality. $5x - 3y < 15$

Step 4.

Determine if the line
will be solid
or dashed (dotted).



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Graph the inequality. $5x - 3y < 15$

Step 5

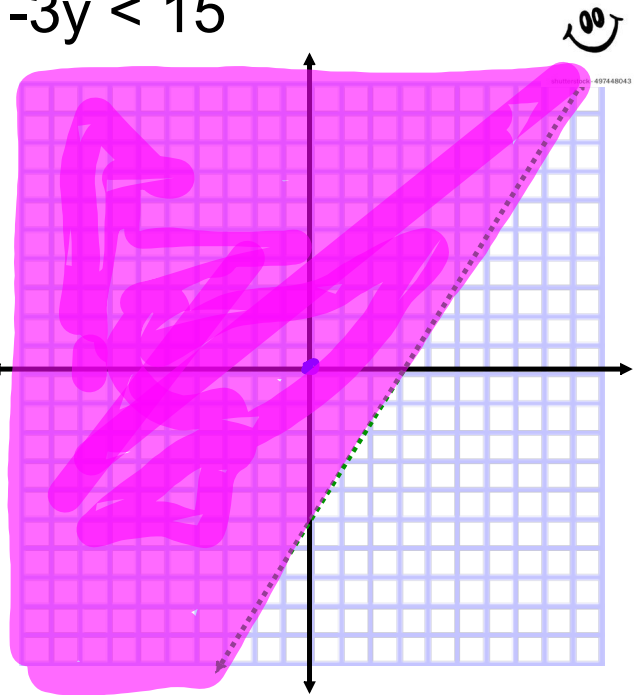
Determine where to shade the graph.

Use the co-ordinate $(0,0)$.
(x,y)

Verify $(0,0)$
 $5x - 3y < 15$
 $5(0) - 3(0) < 15$

$0 - 0 < 15$
 $0 < 15$

TRUE



If it is true,
you
shade on the
same
side of the line
with $(0,0)$.

If it is false,
you
shade on the
opposite
side of the line
with $(0,0)$.

Graph the inequality. $5x - 3y < 15$

Step 5.

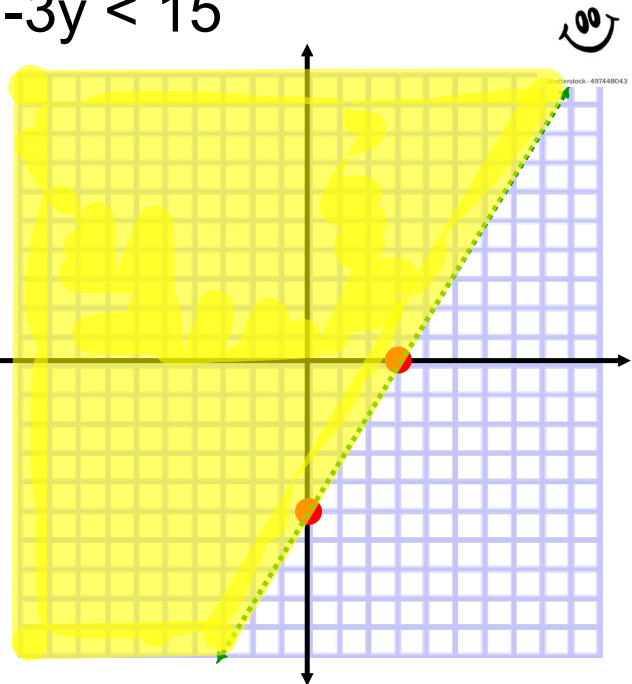
Determine where
to shade the graph.

Use the co-ordinate $(0,0)$.
 (x,y)

$$\begin{aligned} &\text{Verify } (0,0) \\ &5x - 3y < 15 \\ &5(0) - 3(0) < 15 \\ &0 - 0 < 15 \\ &0 < 15 \end{aligned}$$

FALSE

This is true, therefore we
shade on the $(0,0)$ side of
the line.



If it was false,
you would
shade on the
opposite
side of the line
with $(0,0)$.

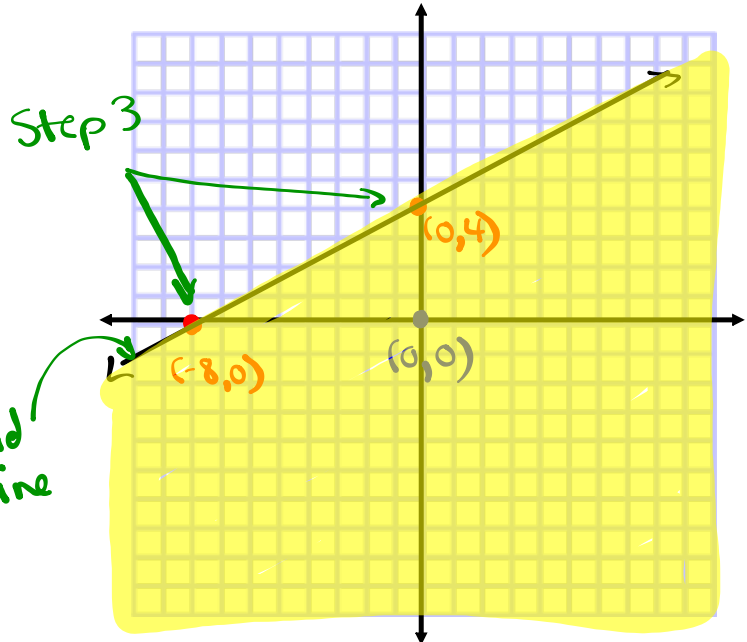
You try... Graph $2x \geq 4y - 16$

- Step 1 - x-intercept
 Step 2 - y-intercept
 Step 3 - plot intercepts
 Step 4 - Join the points (solid or dashed)
 Step 5 - Verify (0,0) and shade.



Step 4 Solid Line

$$2x - 4y \geq -16$$



Step 1:
x-int ($y=0$)

$$2x - 4(0) = -16$$

$$2x - 0 = -16$$

$$\frac{2x}{2} = \frac{-16}{2}$$

$$x = -8$$

$$(-8, 0)$$

Step 2:
y-int ($x=0$)

$$2(0) - 4y = -16$$

$$0 - 4y = -16$$

$$\frac{-4y}{-4} = \frac{-16}{-4}$$

$$y = 4$$

$$(0, 4)$$

Step 5:
use (0,0)

$$2x - 4y \geq -16$$

$$2(0) - 4(0) \geq -16$$

$$0 - 0 \geq -16$$

$$0 \geq -16$$

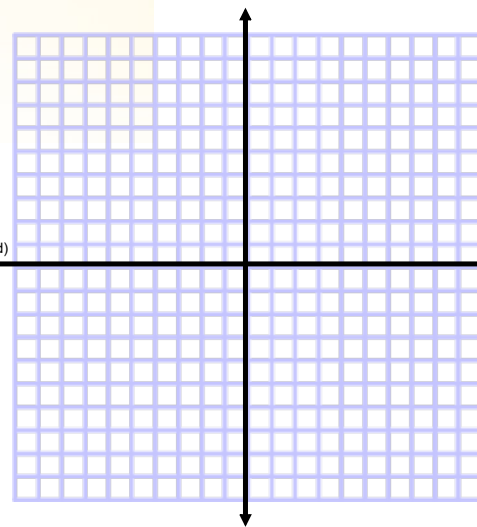
TRUE \rightarrow Shade
to side where
(0,0) lies



You try... Graph

$2x \geq 4y - 16$

- Step 1 - x-intercept
- Step 2 - y-intercept
- Step 3 - plot intercepts
- Step 4 - Join the points (solid or dashed)
- Step 5 - Verify (0,0) and shade.



Step 1
 $2x = 4y - 16$
 $2x = 4(0) - 16$
 $2x = 0 - 16$
 $2x = -16$
 $x = -8$

Step 2
 $2x = 4y - 16$
 $2(0) = 4y - 16$
 $0 = 4y - 16$
 $16 = 4y$
 $4 = y$

Steps 4 and 5
 $2(0) \geq 4(0) - 16$
 $0 \geq 0 - 16$
 $0 \geq -16$
 True!

Shade on the same side as (0,0)

Check out the sheet. :)