Graph: ① $2x - 5y = 12$

② $x = -2$

③ $y = 3$

④ $y = -\dfrac{2}{3}x + 1$

Write in standard form

⑤ $3\left(y = -\dfrac{2}{3}x + 1\right)$

$3y = -2x + 3$

$\underline{+2x \qquad +2x}$

$2x + 3y = 3$

$$\text{(6)}^{\frac{15}{1}} \left[\frac{1}{3}y = \frac{4}{5}x + \frac{7}{15} \right]$$

$$5y = 12x + 7$$
$$\underline{-12x \quad -12x}$$
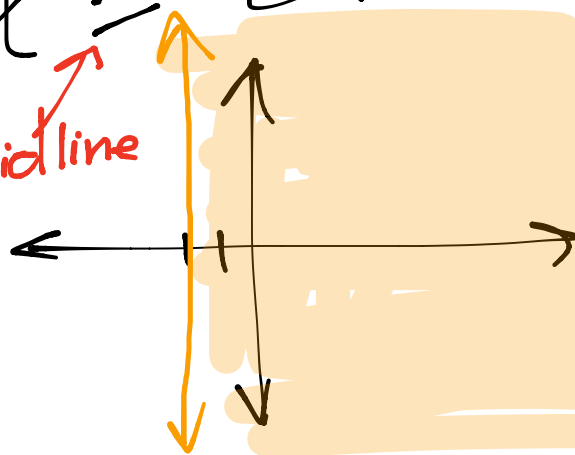$$-12x + 5y = 7 \quad \text{mult. by } -1$$
$$12x - 5y = -7$$

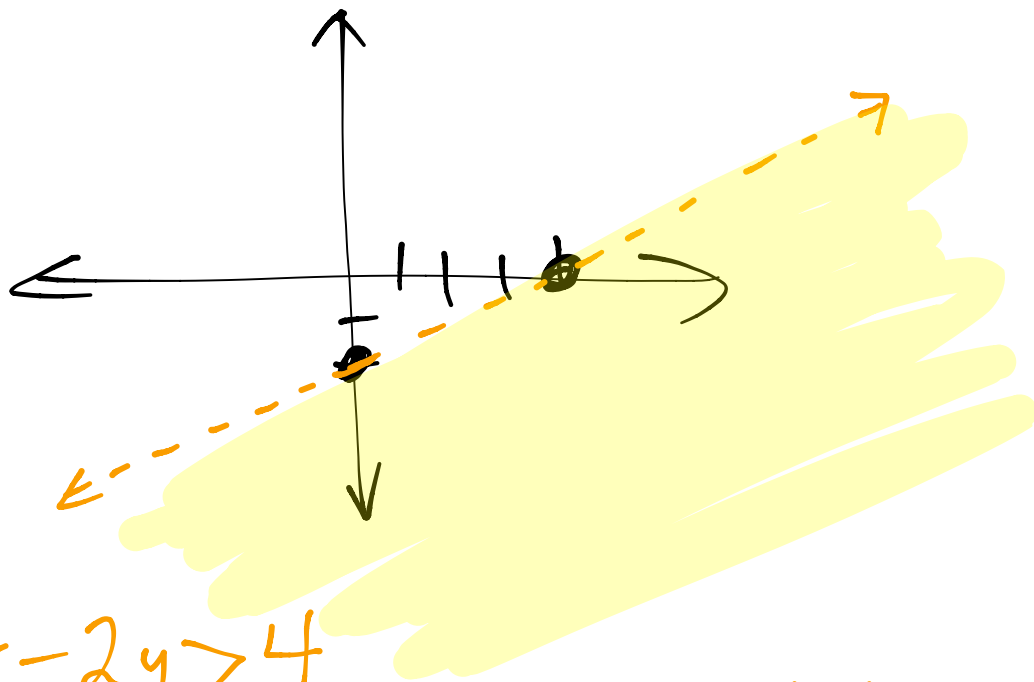# How do I graph linear inequalities?

$$x \geq -2$$

solid line

$$x - 2y > 4$$

Dashed/dotted line

x-int: $x = 4$
$(4, 0)$

y-int:
$-2y = 4$
$y = -2$
$(0, -2)$

$x - 2y > 4$
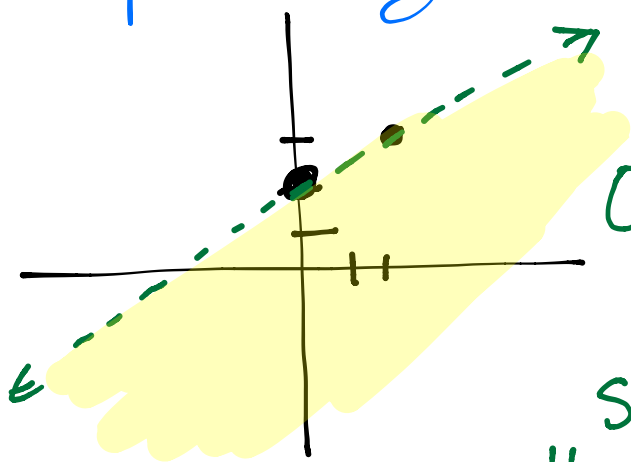
Plug in $(0,0)$ & see if the statement is True or False.

$0 - 2 \cdot 0 > 4$?

$0 > 4$?

No. Shade the side that does not contain $(0,0)$.

Ex. Graph $\quad y \boxed{<} \frac{1}{2}x + 2$

Test $(0,0)$

$0 \overset{?}{<} \frac{1}{2} \cdot 0 + 2$

$0 < 2$ ✓

Shade the side that contains $(0,0)$.

① Graph $3x - 4y = 12$. Label x- and y-intercepts.

② Graph $x = 5$ & $y = -3$.

③ Put in standard form:

$$\frac{1}{2}y = -\frac{1}{4}x + \frac{5}{6}$$

When you are finished, please staple this to your homework and place into the tray. Then start on tonight's homework.

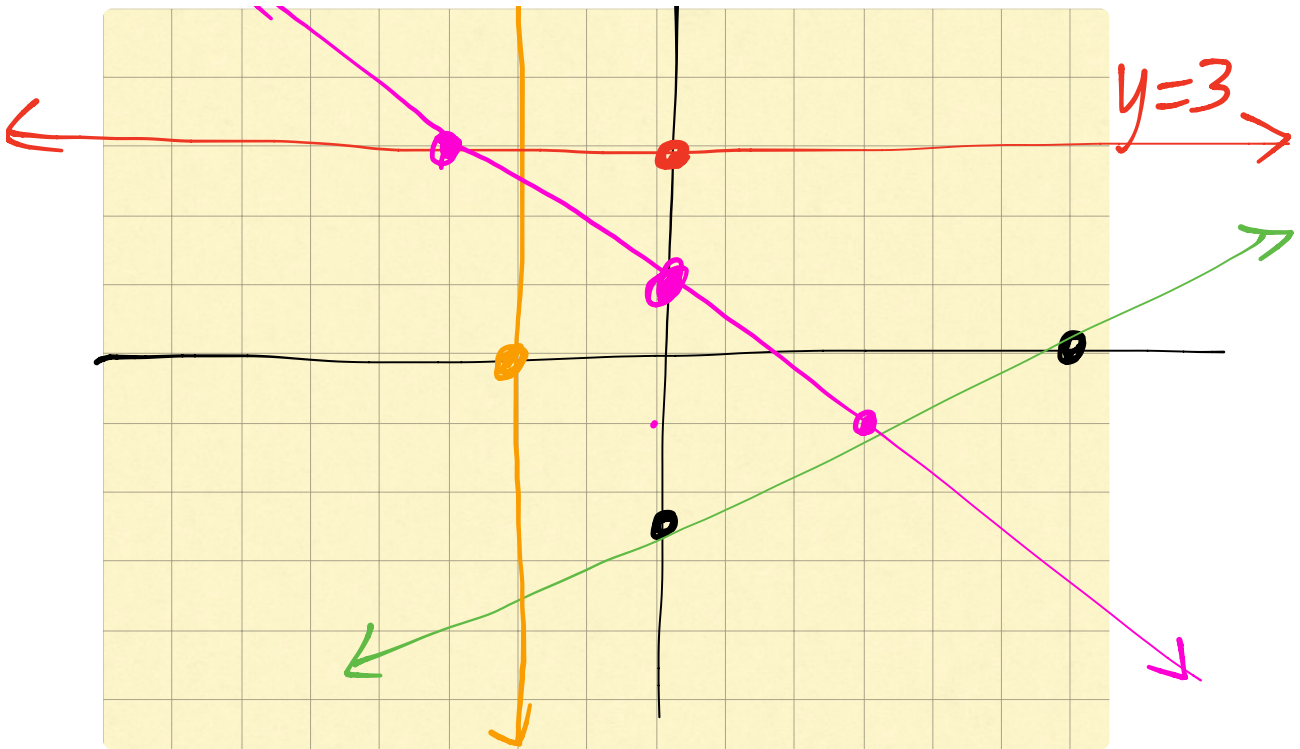$$2x - 5y = 12$$

$$2x = 12$$
$$x = 6$$
$$(6, 0)$$

$$-5y = 12$$
$$y = -2.4$$
$$(0, -2.4)$$

$$x = -2$$

y = 3

$$y = -\frac{2}{3}x + 1$$

Write in standard form:

$$12\left[\frac{1}{2}y = -\frac{1}{4}x + \frac{5}{3}\right]$$

$$6y = -3x + 20$$

$$\begin{array}{r} +3x \qquad\quad +3x \\ \hline 3x + 6y = 20 \end{array}$$

How do I graph linear inequalities?

$3x + 4y > 12$ → dotted

First just graph $3x + 4y = 12$ like normally.

$4y = 12$
$y = 3$
$(0, 3)$

$3x = 12$
$x = 4$
$(4, 0)$
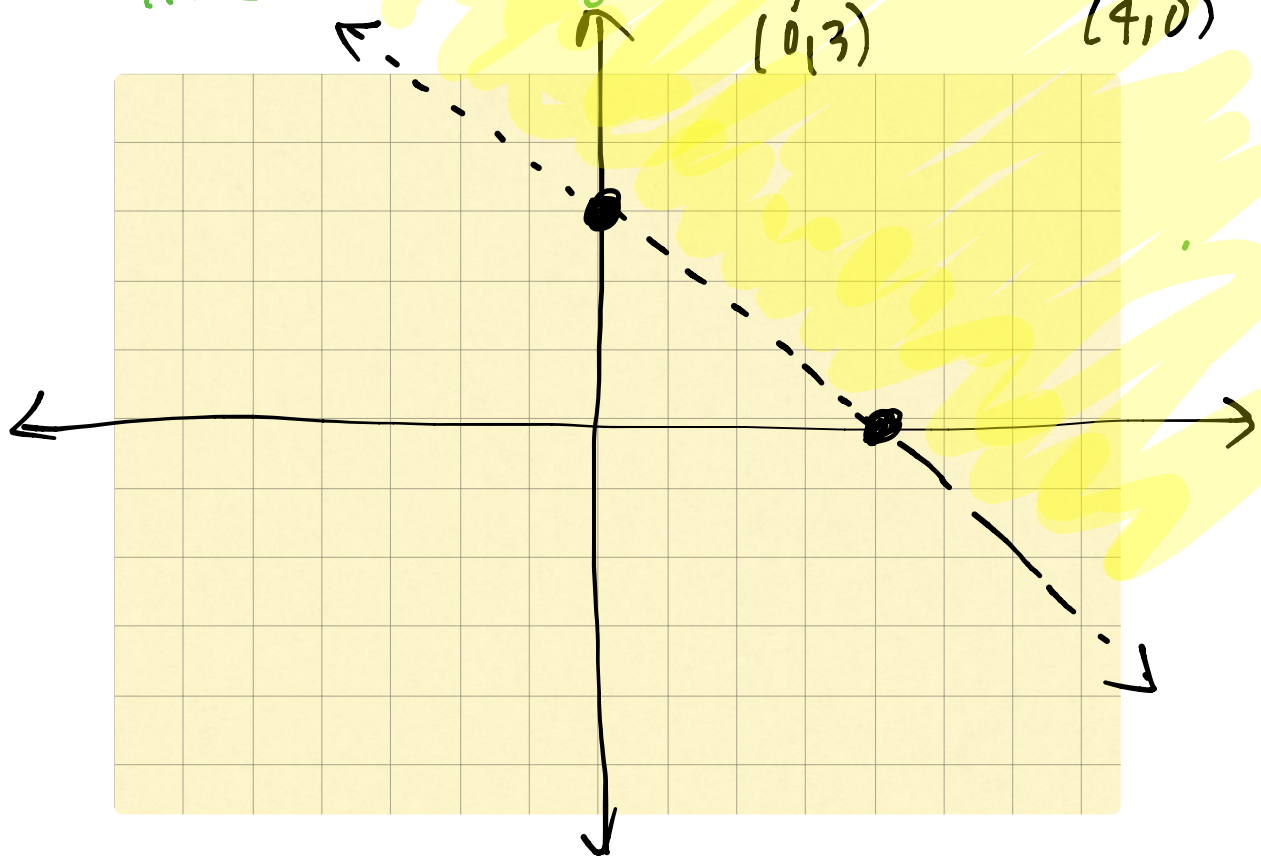
Test $(0,0)$ in $3x + 4y > 12$.

$3 \cdot 0 + 4 \cdot 0 > 12$?

$0 > 12$?   No. This means shade the side that does NOT have $(0,0)$ in it.
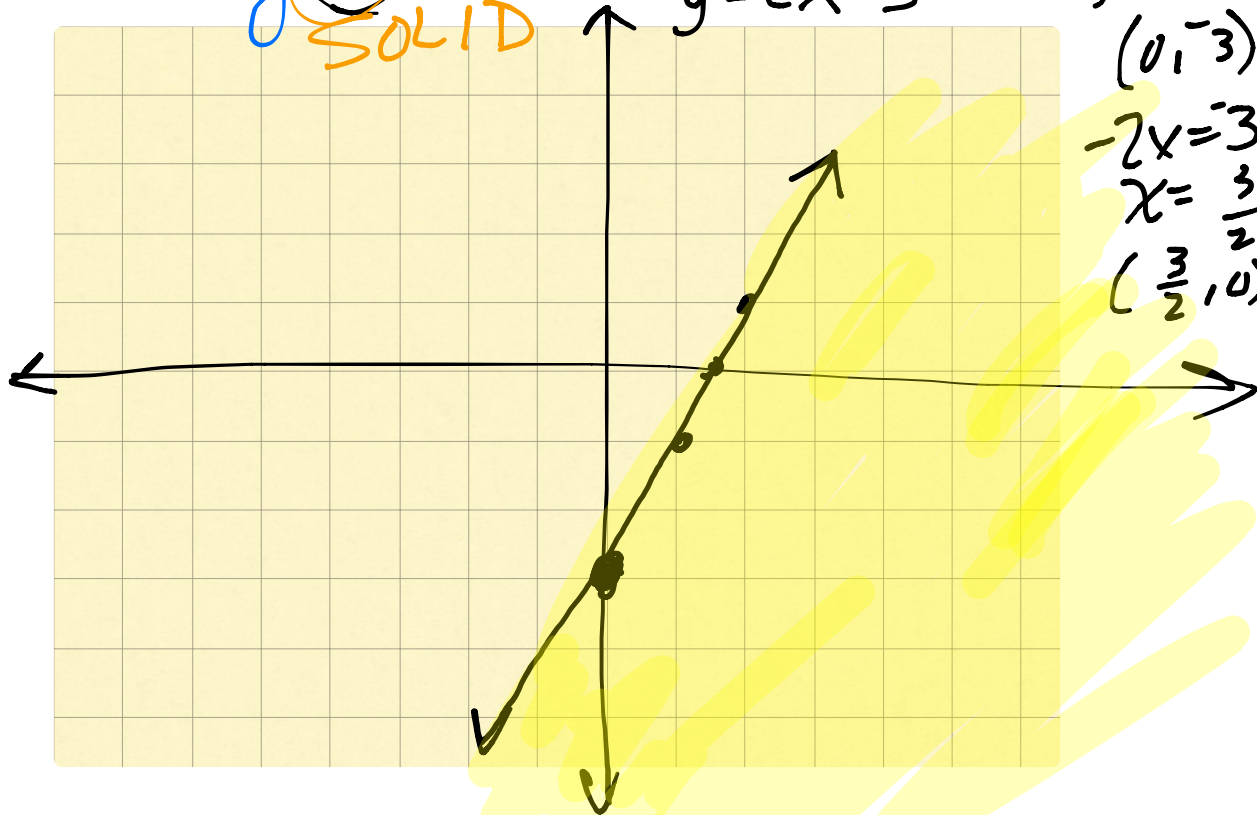
Ex. Graph & shade

$y \leq 2x - 3$

SOLID

$y = 2x - 3$

$-2x + y = 3$

$(0, -3)$

$-2x = 3$

$x = \frac{3}{2}$

$(\frac{3}{2}, 0)$

Test $(0,0)$ $0 \leq 2 \cdot 0 - 3$?

$0 \leq -3$? No.

<u>Graph</u>

① $5x - 3y = 15$

② $x + 2y = -6$

Find x- & y-intercepts.

Turn in h<u>w</u> with these.