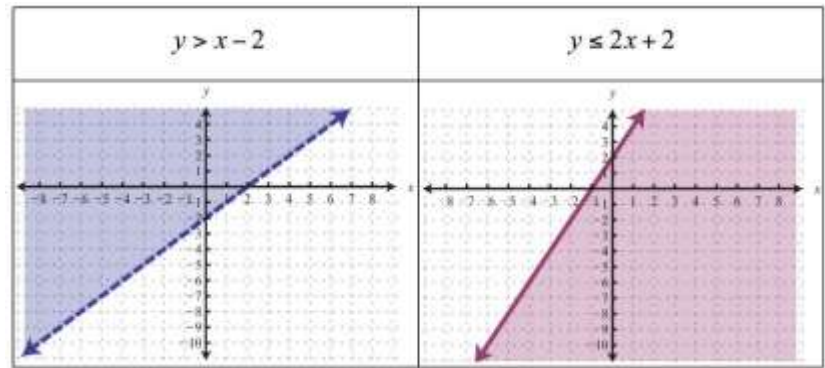


## Two Variable Inequalities

$<$   $>$  is a dotted line

$\leq$   $\geq$  is a solid line

$<$   $\leq$  is below       $>$   $\geq$  is above



1) What is the graph of the inequality?

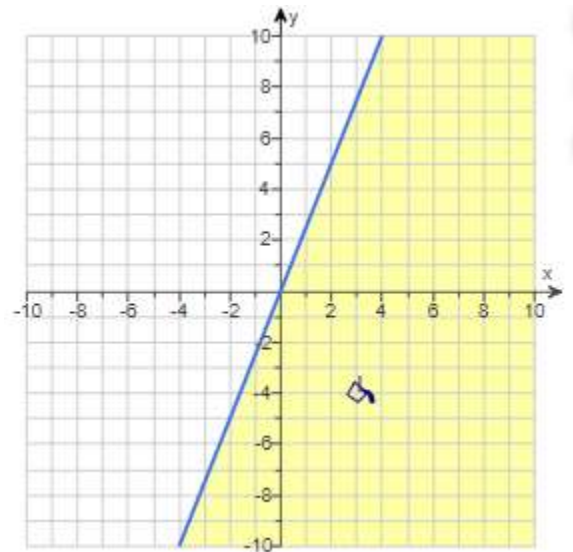
$10y \leq 25x$       Solve for  $y$  by dividing by 10

$y \leq \frac{5}{2}x$       plot (0,0) then up 5 right 2

$\leq$  is a solid line

plug in (1,1) to check

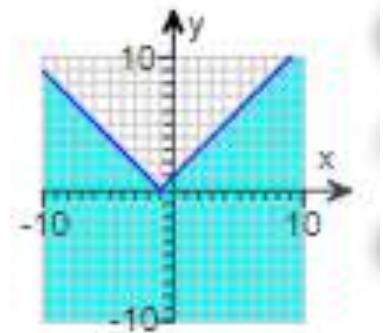
$1 \leq \frac{5}{2}$  is true so we shade the part including the point (1,1)



 to shade

2) What is the graph of the absolute value inequality?

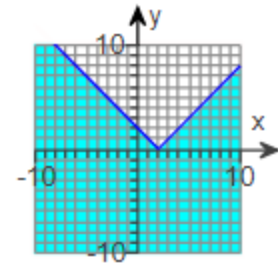
$y \leq |x+1|$       Absolute value graph V shape  
shifts left 1 with a solid line  
and we shade below



3) What is the graph of the absolute value inequality?

$$y \leq |x - 2|$$

Absolute value graph V shape shifts right 2 with a solid line and we shade below



4) Graph the linear inequality.

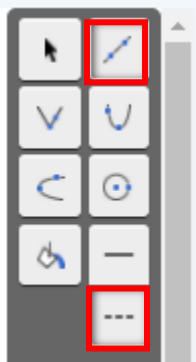
$$y < x - 4$$

plot (0,-4) then up 1 right 1

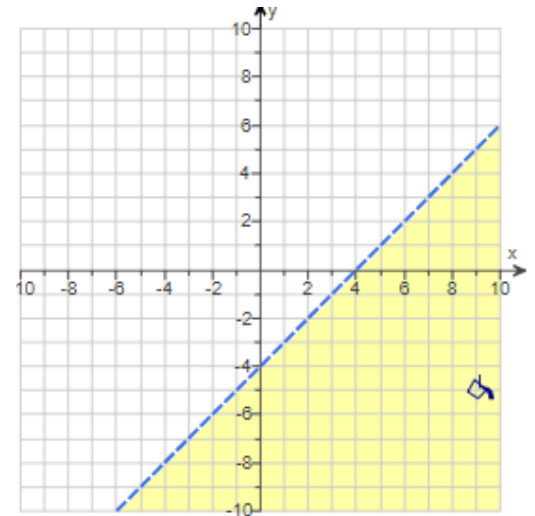
choose line then dotted

Check the point (0,0)

$0 < -4$  is not true so we shade the part not including (0,0)



 to shade



5) Graph the linear inequality.

$$y < 3x - 5$$

plot (0,-5) then up 3 right 1

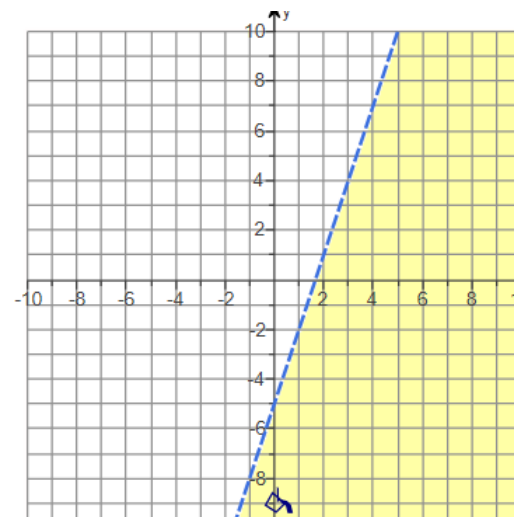
choose line then dotted

Check the point (0,0)

$0 < -5$  is not true so we shade the part not including (0,0)



 to shade



6) Graph the following inequality.

$$y < 4$$



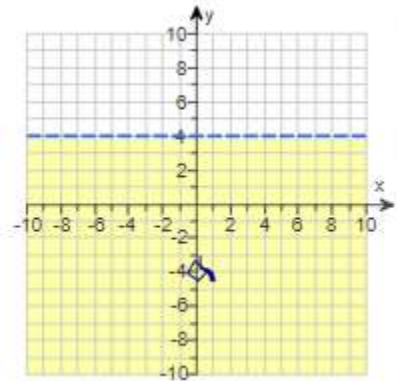
< dotted line

The line  $y=4$  is horizontal line so plot a point  $(0,4)$  then move right one unit and plot another point  $(1,4)$

< so we shade below

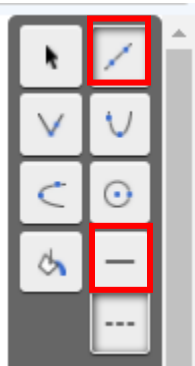


to shade



7) Graph the following inequality.

$$x \leq -2$$



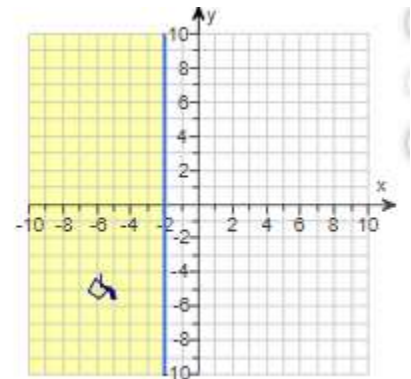
$\leq$  solid line

The line  $x=-2$  is vertical line so plot a point  $(-2,0)$  then move up one unit and plot another point  $(-2,1)$

$\leq$  so we shade left

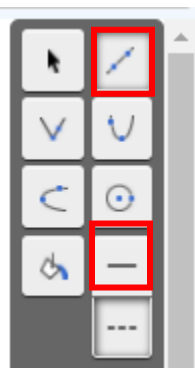


to shade



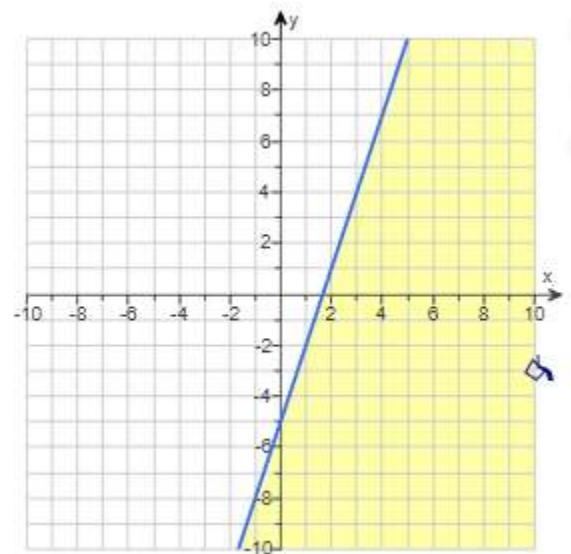
8) Graph the inequality.

$$y \leq 3x - 5$$



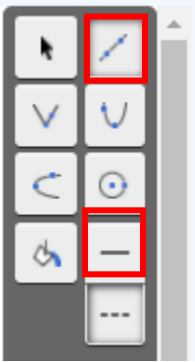
$\leq$  solid line

Plot -5 on y-axis then move up 3 right 1 for second point  
Check the point  $(0,0)$   
 $0 \leq -5$  is not true so we shade the part not including  $(0,0)$



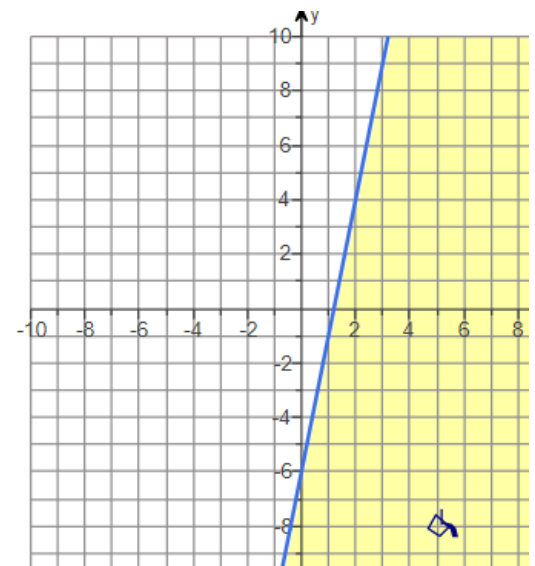
9) Graph the inequality.

$$y \leq 5x - 6$$



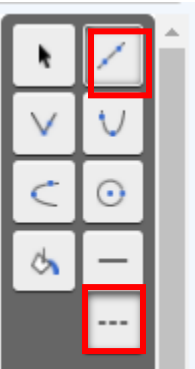
$\leq$  solid line

Plot -6 on y-axis then move up 5 right 1 for second point  
Check the point (0,0)  
 $0 \leq -6$  is not true so we shade the part not including (0,0)



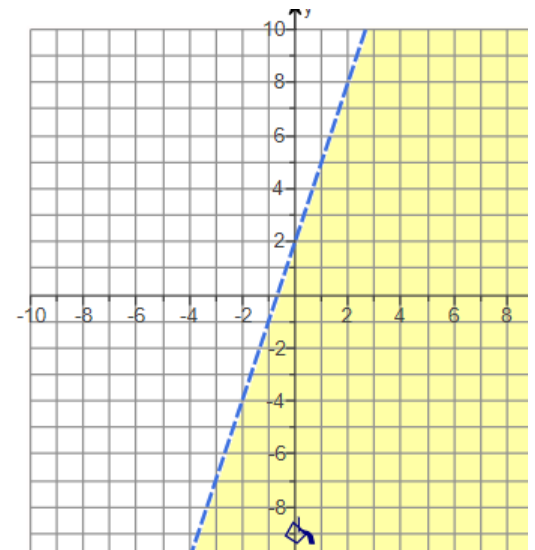
10) Graph the linear inequality.

$$y < 3x + 2$$



$<$  solid line

Plot 2 on y-axis then move up 3 right 1 for second point  
Check the point (0,0)  
 $0 < 2$  is true so we shade the part including (0,0)



11) What is the graph of the inequality?

$$9y \leq 12x$$

$$y \leq \frac{4}{3}x$$

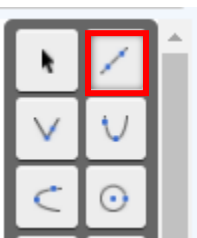
Solve for y by dividing by 9

plot (0,0) then up 4 right 3

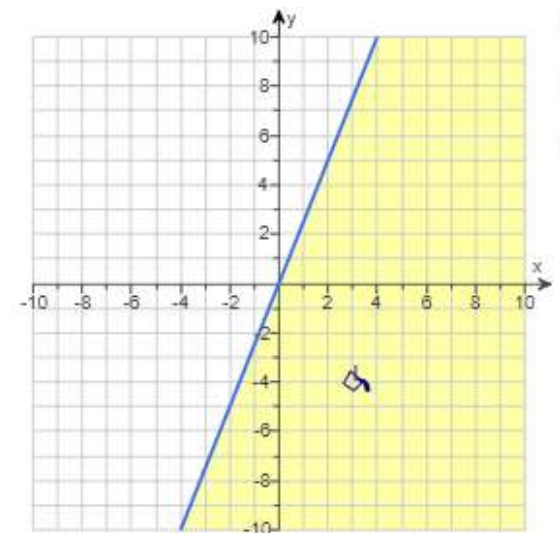
$\leq$  is a solid line

plug in (1,1) to check

$1 \leq \frac{4}{3}$  is true so we shade the part including the point (1,1)



 to shade



12) Graph the following inequality.

$$y > 2$$



> dotted line

The line  $y=2$  is horizontal line so plot a point  $(0,2)$  then move right one unit and plot another point  $(1,2)$

> so we shade above



to shade

