9.6 Linear Inequalities in 2 Variables

Objective:

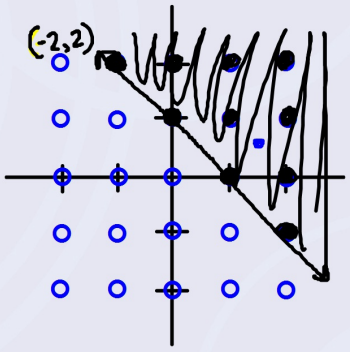
- To determine if an ordered pair is a solution of an inequality
- To graph linear inequalities in 2 variables

Activity

$x+y \geq 1$

Replace $\geq$ with an $=$, this will be the boundary line.

$X+y=1$



What does the bar under the inequality mean? What if there is no bar?

$<$ or $>$ ↑ Points on the line are not included

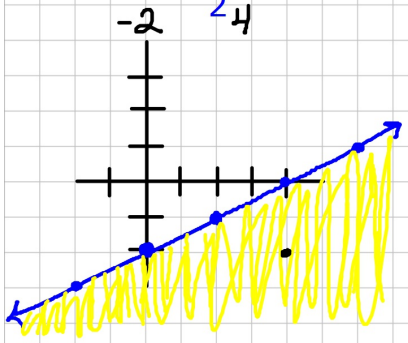
$\leq$ or $\geq$ ↑ Points on the line are included

Boundary lines:
$<$ or $>$ use a dotted line
$\leq$ or $\geq$ use a solid line

Shading:
$<$ or $\leq$ shade BELOW the line
$>$ or $\geq$ shade ABOVE the line

Example 1

Graph $y \leq \frac{1}{2}x - 2$



Boundary line:

Dotted or Solid?

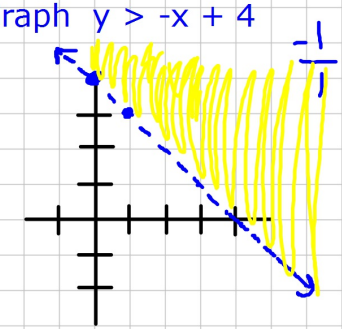
Solid

Shade above or below?

Below

Example 2

Graph $y > -x + 4$



Boundary line:

Dotted or Solid?

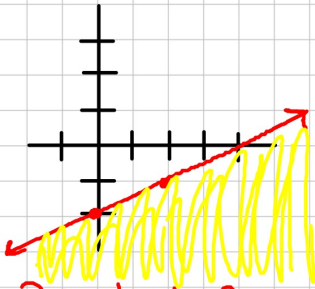
Dotted

Shade above or below?

Above

Example 3

Graph $2x - 4y \geq 8$



$2x - 4y \geq 8$

$-2x \quad -2x$

$-4y \geq -2x + 8$

$\div -4 \quad \div -4$

$y \leq \frac{1}{2}x - 2$

Boundary line:

Dotted or Solid?

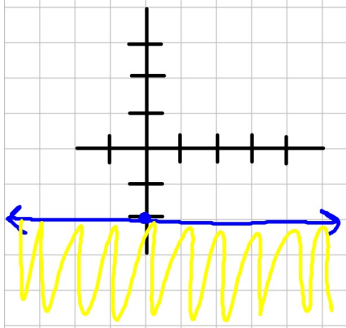
Solid

Shade above or below?

below

Example 4

Graph $y \leq -2$



Boundary line:

Dotted or Solid?

Solid

Shade above or below?

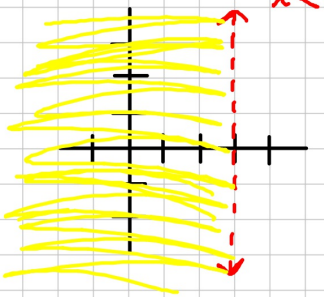
below

Example 5

Graph $8x < 24$

$\div 8 \quad \div 8$

$x < 3$



Boundary line:

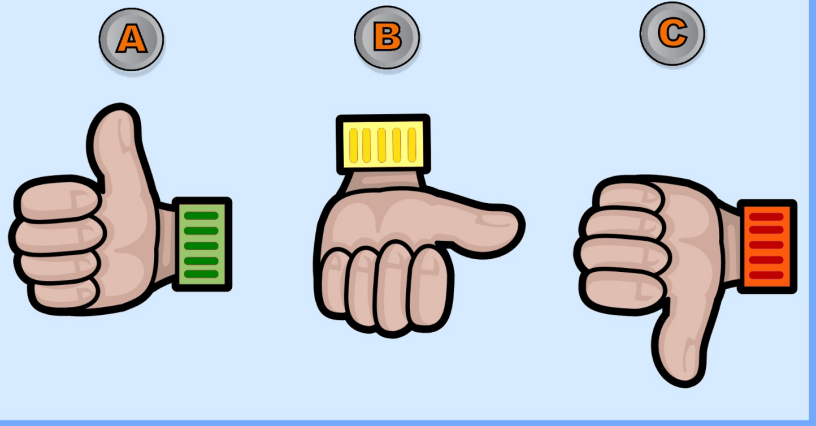
Dotted or Solid?

Dotted

Shade right or left?

left

How did it go?



Learning objective review

Response category: *text input*

Things we found difficult: