6.7 GRAPHING INEQUALITIES IN TWO VARIABLES

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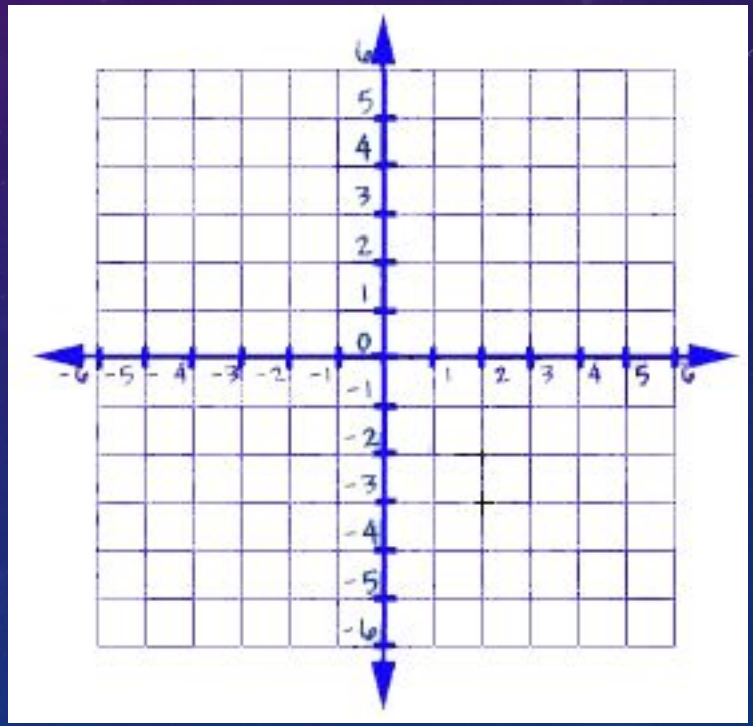

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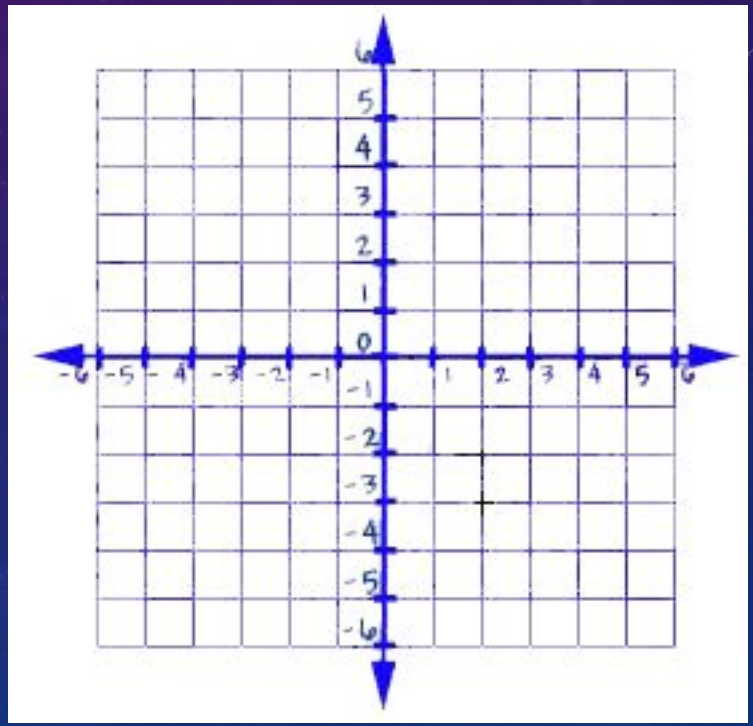
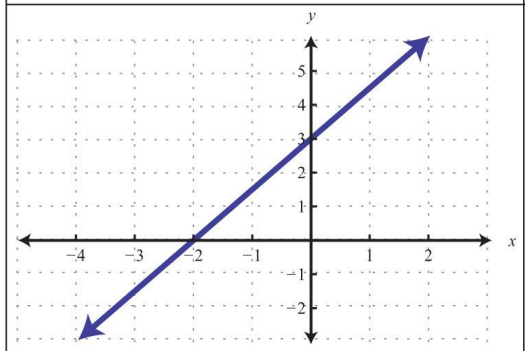
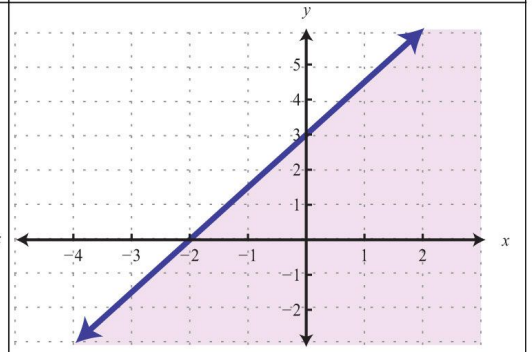
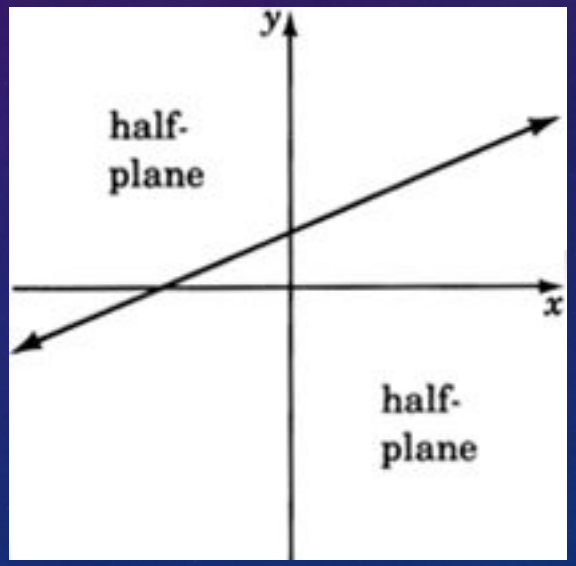


GRAPHING INEQUALITIES IN TWO VARIABLES

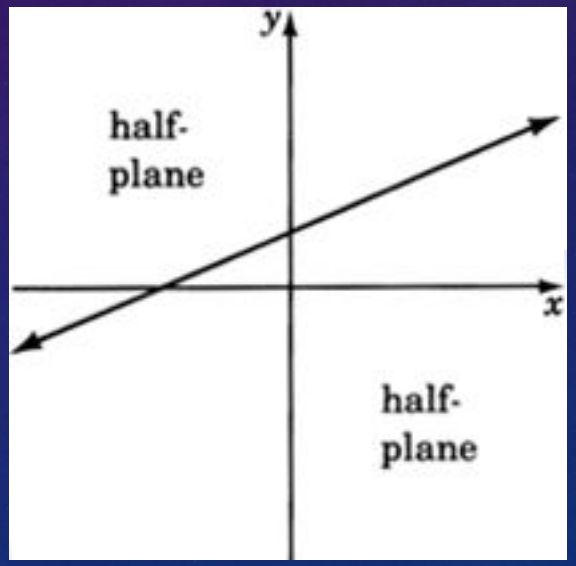
- A solution set for an inequality in two variables contains many ordered pairs when the domain and range are the set of many numbers

Linear Equation	Linear Inequality
$y = \frac{3}{2}x + 3$	$y \leq \frac{3}{2}x + 3$
	

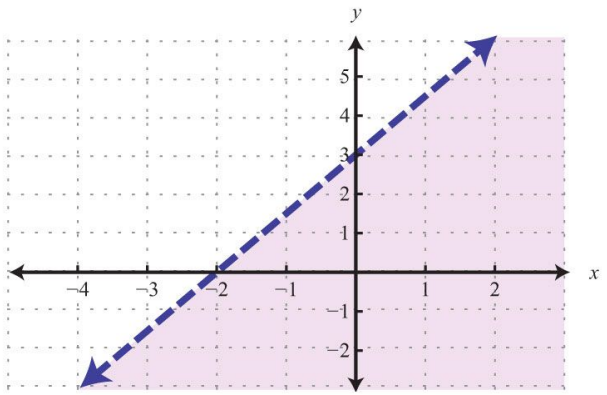
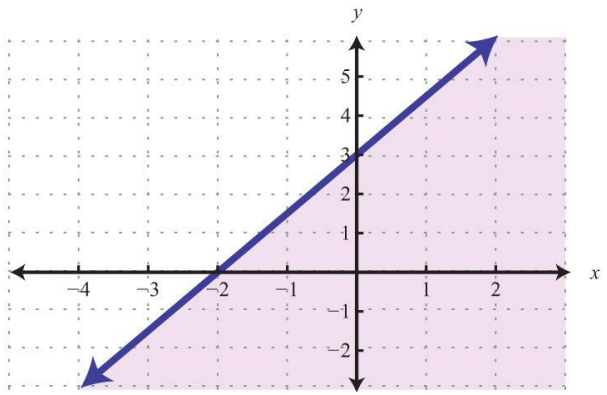
- Half-plane- the region of the graph Where the solution set for an inequality in two variables is located



- <u>Boundary-</u> a line or curve that separates the coordinate plane



BOUNDARY LINE

Non-Inclusive Boundary	Inclusive Boundary
$y < \frac{3}{2}x + 3$	$y \leq \frac{3}{2}x + 3$
	

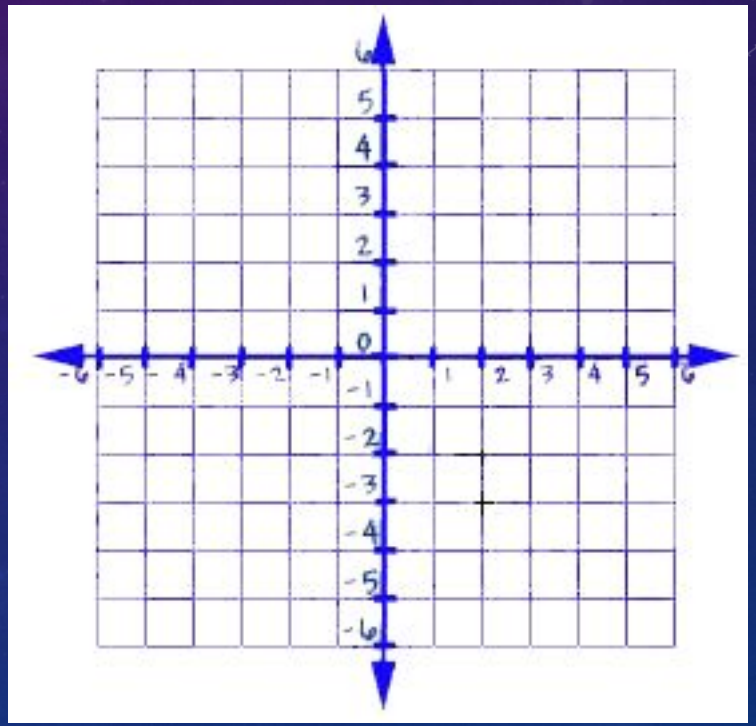
- < or > means a dashed line
- ≤ or ≥ means a solid line

STEPS:

- Step 1: solve for y in terms of X
- Step 2: Graph the line as if it were an equality, but with either a dashed or solid line
- Step 3: pick a point in one of the half-planes to test it.
- Step 4: If step 3 is true, shade the Half-plane it lies in. If step 3 is false. Shade the other half-plane

- Graph:

1 – y > X



NOTE****

- Restrictions: in real life, you can't always use negative numbers and the solutions are only in quadrant 1