

The background features a dark blue gradient with faint, light blue circular patterns and a scale on the left side. The scale is a semi-circular arc with tick marks and numbers ranging from 140 to 260 in increments of 10. Several circular elements, some solid and some dashed, are scattered across the background, some with arrows indicating direction.

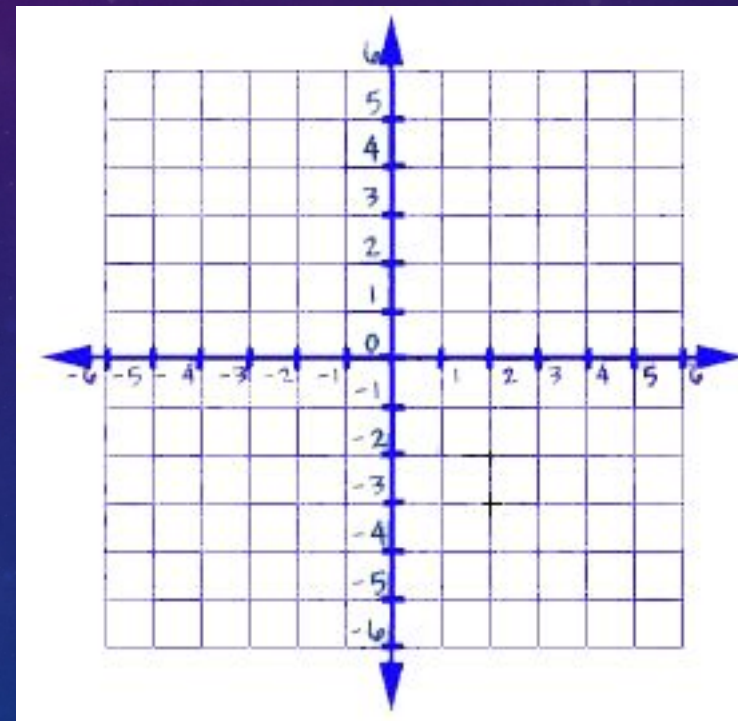
6.7 GRAPHING INEQUALITIES IN TWO VARIABLES

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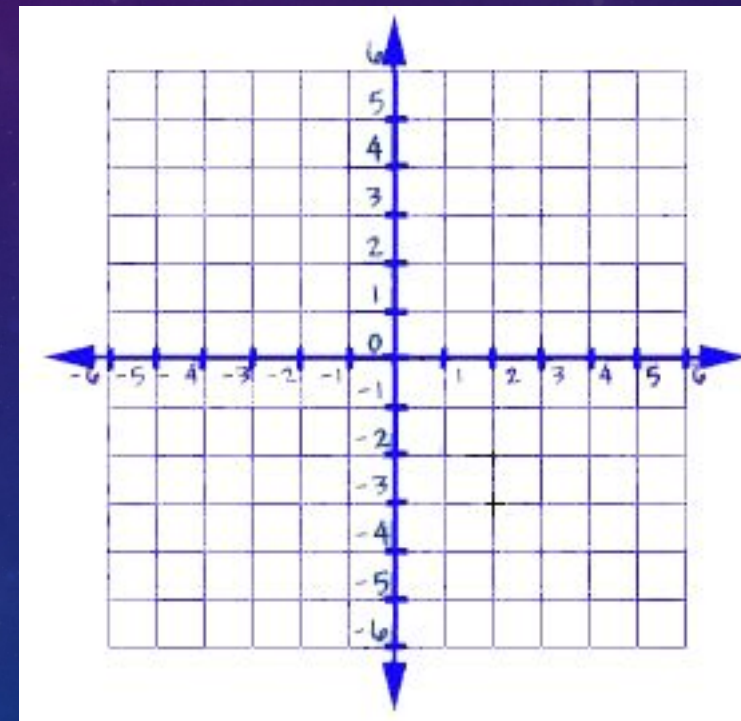
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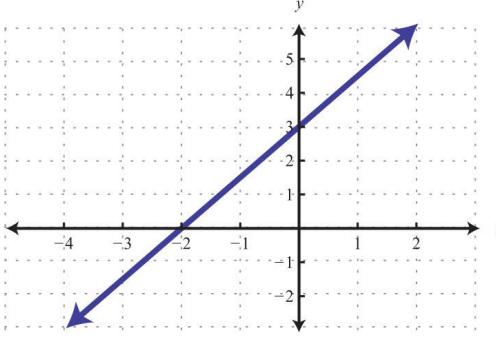
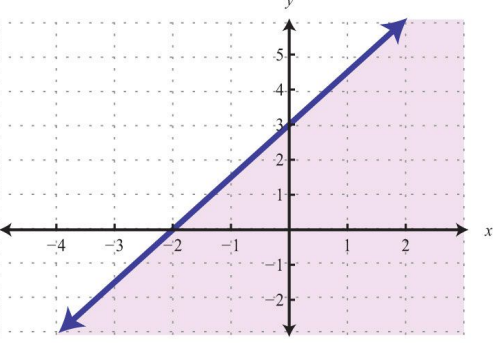


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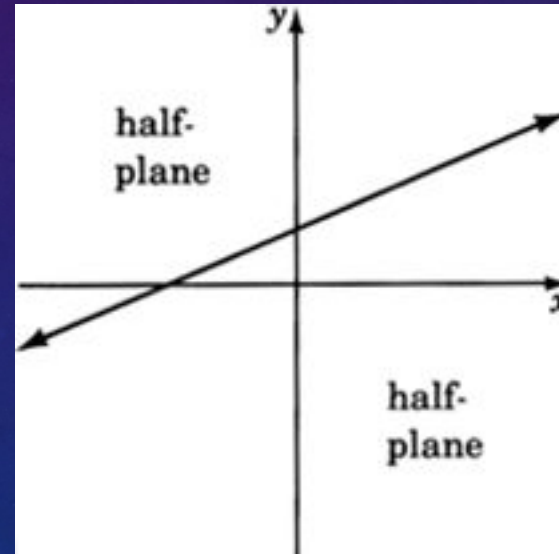


GRAPHING INEQUALITIES IN TWO VARIABLES

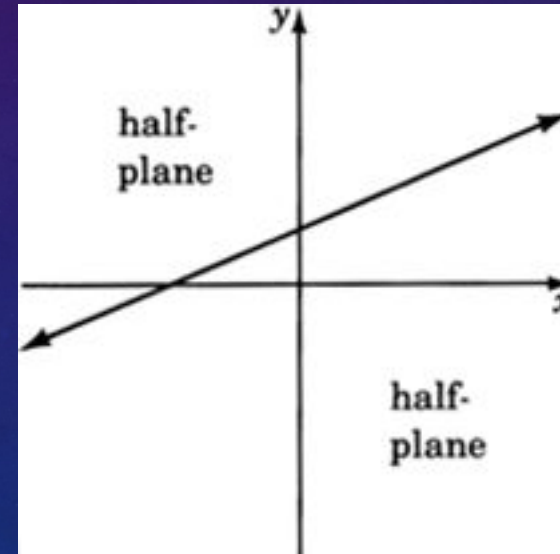
- A solution set for an inequality in two variables contains many ordered pairs when the domain and range are the set of many numbers

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

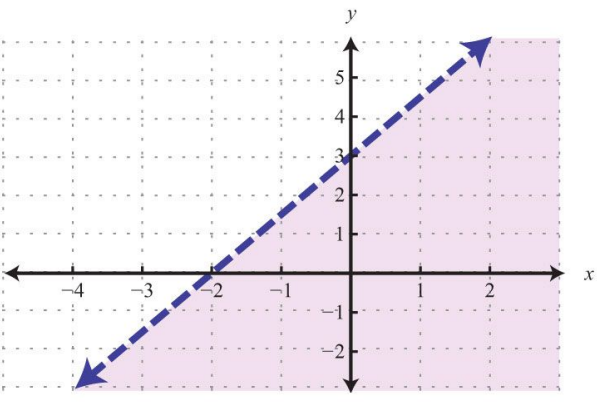
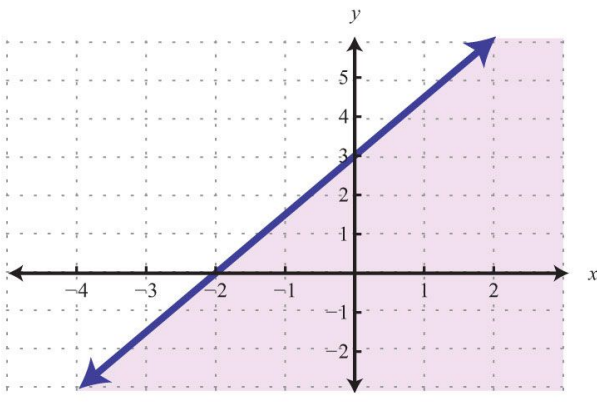
- Half-plane- the region of the graph Where the solution set for an inequality in two variables is located



- Boundary- a line or curve that separates the coordinate plane



BOUNDARY LINE

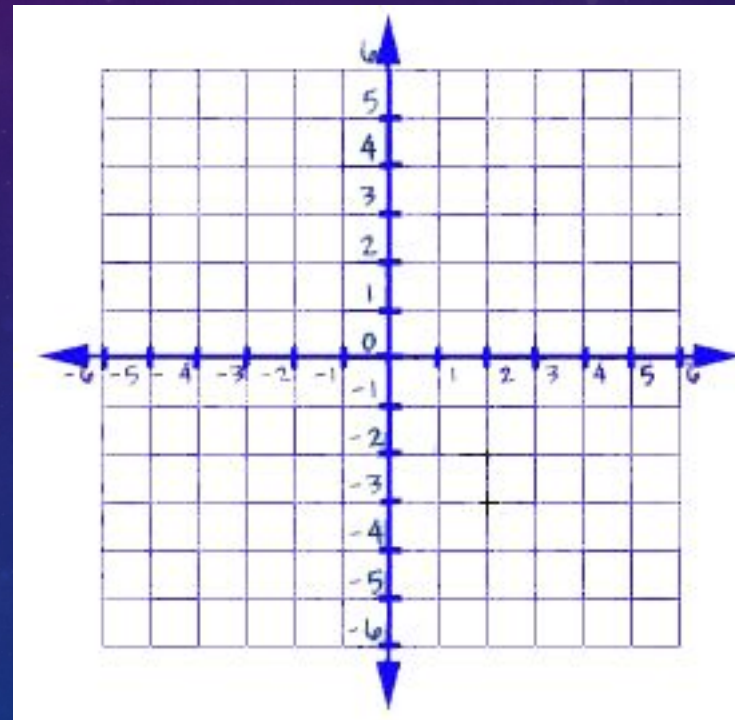
Non-Inclusive Boundary	Inclusive Boundary
$y < \frac{3}{2}x + 3$	$y \leq \frac{3}{2}x + 3$
	

- $<$ or $>$ means a dashed line
- \leq or \geq 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

