



**Unit 4: Chapter 7**

**SYSTEMS OF  
INEQUALITIES**

Cornell Notes/Summary Sheet

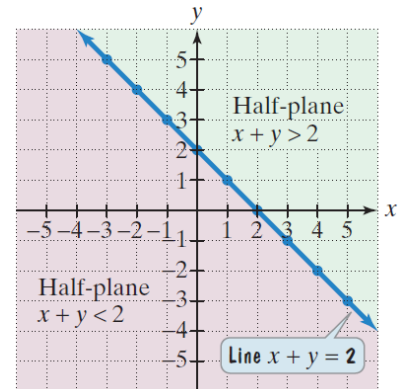
Name: \_\_\_\_\_

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**Lesson 7.1 – Big Ideas**

- Linear inequality in two variables
- Boundary lines
- Graphing a linear inequality
- Test point
- Half-plane

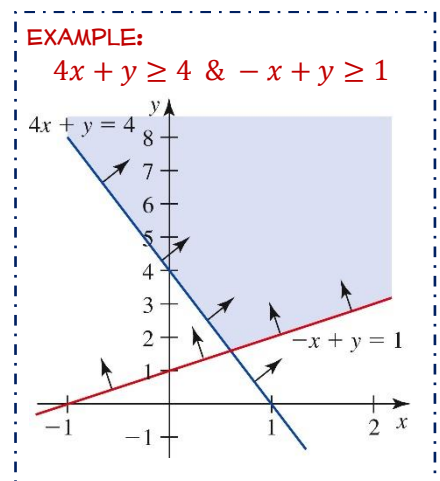
**Your Notes**



**Lesson 7.2 – Big Ideas**

- Writing and graphing systems of linear inequalities
- Constraints
- Finding the solution to a system of linear inequalities

**Your Notes**



### Lesson 7.3 – Big Ideas

- Writing and graphing systems of linear inequalities
- Finding the solution to a system of linear inequalities
- When are intersection points solutions to the system of linear inequalities?

### Your Notes

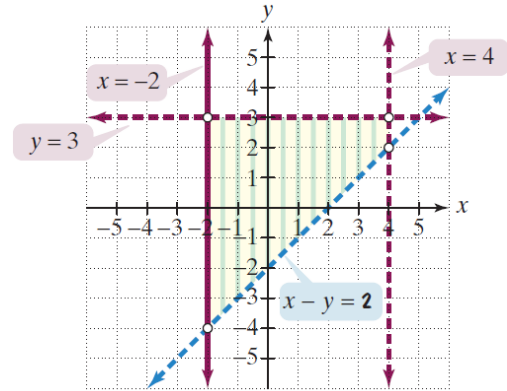
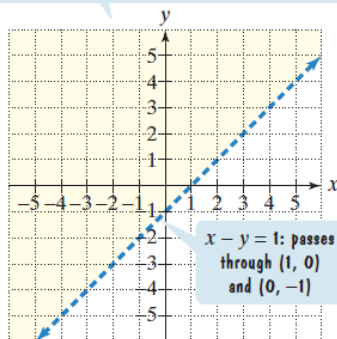


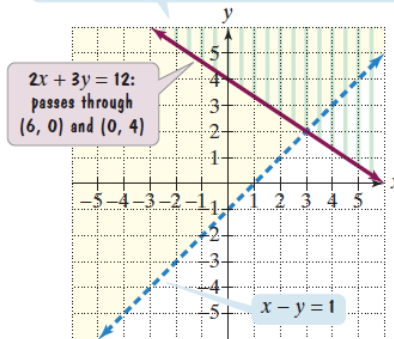
FIGURE 7.28 The graph of  $x - y < 2$  and  $-2 \leq x < 4$  and  $y < 3$

Graph  $x - y < 1$ . The blue line,  $x - y = 1$ , is dashed: Equality is not included in  $x - y < 1$ . Because  $(0, 0)$  makes the inequality true ( $0 - 0 < 1$ , or  $0 < 1$ , is true), shade the half-plane containing  $(0, 0)$  in yellow.



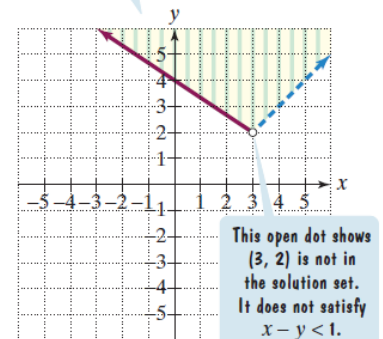
The graph of  $x - y < 1$

Add the graph of  $2x + 3y \geq 12$ . The red line,  $2x + 3y = 12$ , is solid: Equality is included in  $2x + 3y \geq 12$ . Because  $(0, 0)$  makes the inequality false ( $2 \cdot 0 + 3 \cdot 0 \geq 12$ , or  $0 \geq 12$ , is false), shade the half-plane not containing  $(0, 0)$  using green vertical shading.



Adding the graph of  $2x + 3y \geq 12$

The solution set of the system is graphed as the intersection (the overlap) of the two half-planes. This is the region in which the yellow shading and the green vertical shading overlap.



The graph of  $x - y < 1$  and  $2x + 3y \geq 12$

This open dot shows  $(3, 2)$  is not in the solution set. It does not satisfy  $x - y < 1$ .