

§6-1 Graphing Inequalities (cont)

Example

A hockey team has 18 players. Practice jerseys are \$50 and hockey sticks are \$85. You have no more than \$3000 to spend. Write the inequality.

Let  $j$  be the # of jerseys  
 $s$  be the # of sticks ] You must identify the variables

$$50j + 85s \leq 3000$$

$$\{ (j, s) \mid 50j + 85s \leq 3000, j \in \mathbb{W}, s \in \mathbb{W} \}$$

Example 3 (p 300)

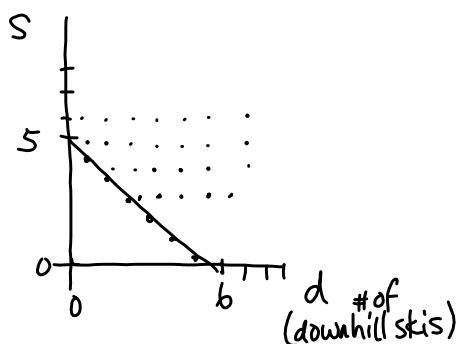
Revenue from downhill skis is \$100 and \$120 for each snowboards  
 Goal is to have a revenue of more than \$600 per day.  
 What combination of sales will meet or exceed \$600?

Let  $d$  be the # of downhill skis  
 $s$  be the # of snowboards

$$100d + 120s \geq 600$$

Notation:  $\{ (d, s) \mid 100d + 120s \geq 600, d \in \mathbb{W}, s \in \mathbb{W} \}$

Sketch the graph



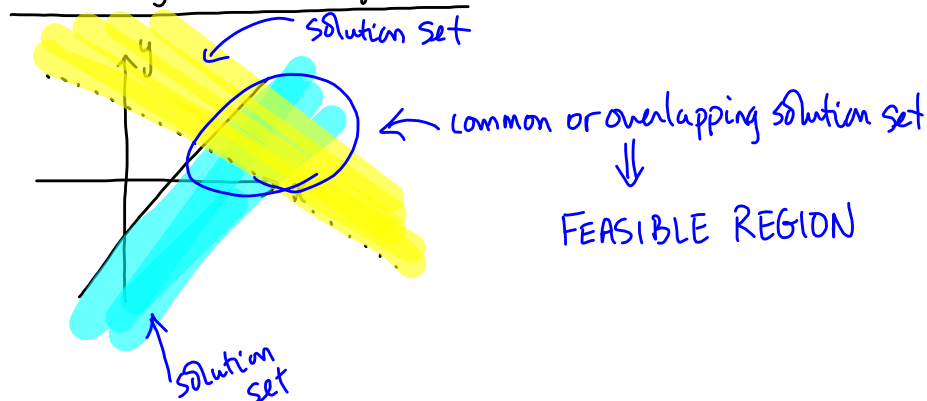
Boundary Line:

$$100d + 120s = 600$$

d-intercept:  $100d + 120(0) = 600$   
 $100d = 600$   
 $d = 6$

s-intercept:  $100(0) + 120s = 600$   
 $s = 5$

### §6-2 Systems of Inequalities



Example - Graph the following system of linear inequalities

$$y \geq -2x$$

$$-3 < x - y$$

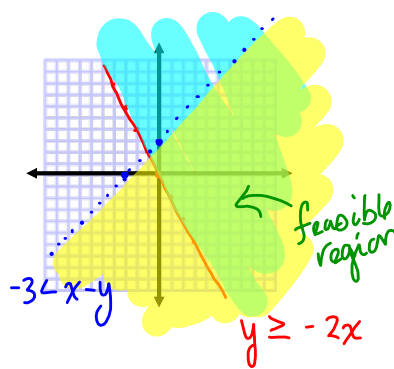


x-intercept:  $-3 = x - 0$

$-3 = x$

y-intercept:  $-3 = 0 - y$

$y = 3$



use (1,1) as a test pt:

$$y \geq -2x$$

$$1 \geq -2(1)$$

$$1 \geq -2 \checkmark$$

use (0,0) as test

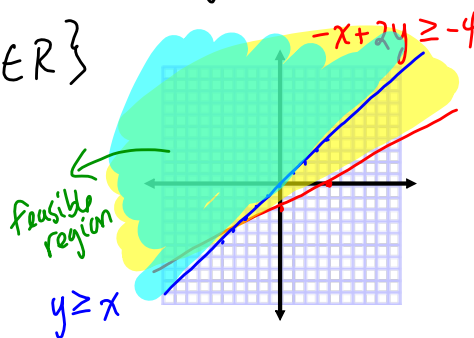
$$-3 < 0 - 0$$

$$-3 < 0 \checkmark$$

Example: Graph the following system of linear inequalities

$$\{(x,y) \mid -x + 2y \geq -4, x \in \mathbb{R}, y \in \mathbb{R}\}$$

$$\{(x,y) \mid y \geq x, x \in \mathbb{R}, y \in \mathbb{R}\}$$



#### TO DO

① Sheet (16-18)

② Sheet (19)

③ p 303 | 4, 5, 7, 9 + 10

p 307 | 2