

HOMEWORK Questions...

p. 252: #1 - 3

p. 259: #1 - 4

#2

2. The following model represents an optimization problem.
Determine the maximum solution.

Optimization Model

Restrictions:

$x \in \mathbb{R}$ and $y \in \mathbb{R}$

Constraints:

$x \geq 0$

$y \leq 0$

$3y \geq -2x + 3$

$y \geq 2x - 7$

Objective function:

$D = -5x + 3y$

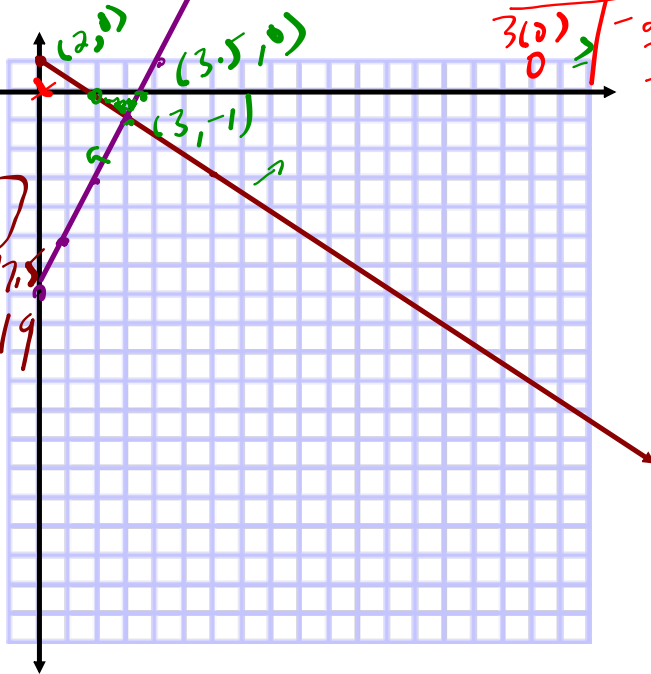
Q4 ✓
 $3y \geq -2x + 3$
 $y \geq 2x - 7$

$y = 2x - 7$
 $y \geq 2x - 7$
 $CS \geq RS$
 $0 \geq 2(0) - 7$
 $0 \geq -7$ Yes

$3y = -2x + 3$
 $y = -\frac{2}{3}x + 1$

$3y \geq -2x + 3$
 $CS \geq RS$
 $3(0) \geq -2(0) + 3$
 $0 \geq 3$ No

MAX



$(2,0) \quad -5(2) + 3(0) = -10$
 $(3.5,0) \quad -5(3.5) + 3(0) = -17.5$
 $(3,-1) \quad -5(3) + 3(-1) = -19$

ONE MORE...

Malia and Lainey are baking cupcakes and banana mini-loaves to sell at a school fundraiser...

- No more than 60 cupcakes and 35 mini-loaves can be made each day.
- Malia and Lainey can make no more than 80 baked goods, in total, each day.
- It costs \$0.50 to make a cupcake and \$0.75 to make a mini-loaf.

Determine the maximum cost to produce the baked goods.

$$C = 0.50x + 0.75y$$

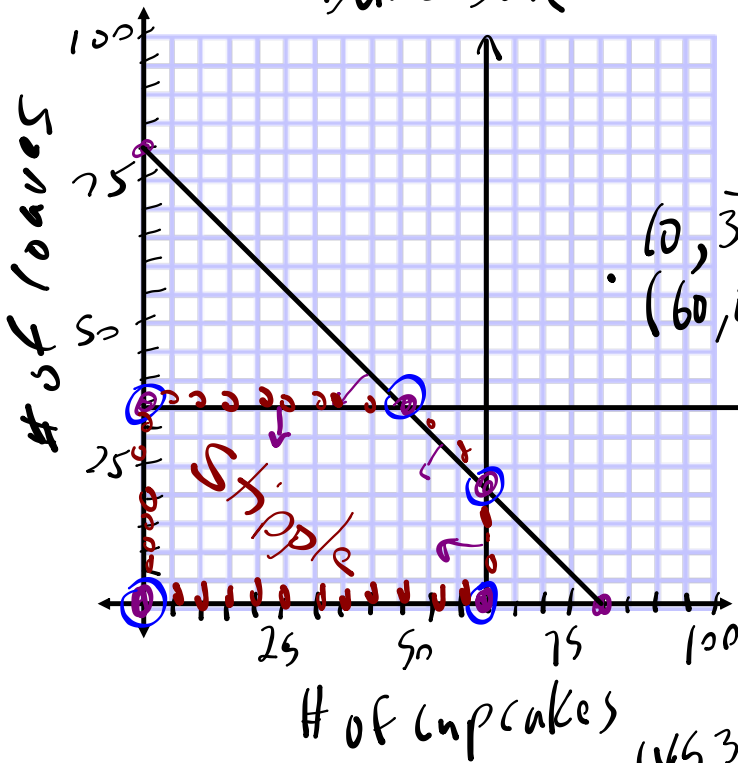
$x \rightarrow$ # of cupcakes $x \in \mathbb{W}$
 $y \rightarrow$ # of loaves $y \in \mathbb{W}$

$$\begin{aligned} x &\leq 60 \\ y &\leq 35 \end{aligned}$$

$$x + y \leq 80$$

$$\begin{aligned} x + y &= 80 \\ x_{int} &(80, 0) \\ y_{int} &(0, 80) \end{aligned}$$

Bake Sale



$(45, 35)$
 $(60, 0)$

$$C = 0.50x + 0.75y$$

mind y

$$0.75(35) = \$26.25$$

$$0.50(60) = \$30$$

Min Cost
 \$26.25

$0.50(45) + 0.75(35)$	
48.75	
$0.50(60) + 0.75(20)$	
45	

Max Cost
 \$48.75

HOMEWORK...

p. 261: #5, 7, 8, 11, 13