

HOMWORK???

p. 261: #1, ~~2~~, 4, 6, 11, 12, 13

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:

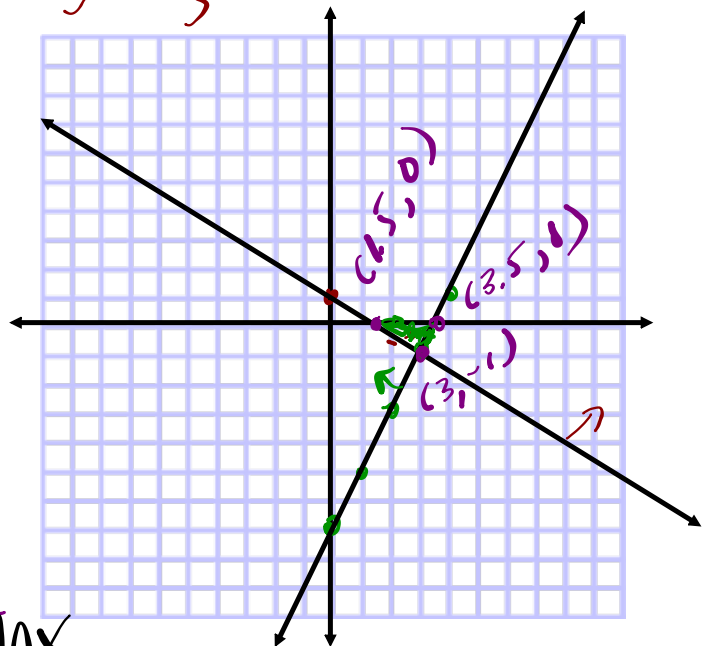
$D = -5x + 3y$

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

$y = 2x - 7$

LS \checkmark RS
 0 | 3
 NO

LS \geq RS
 0 | -7
 YES



$D = -5x + 3y$

$(1.5, 0)$	$-5 \cdot 1.5$	-7.5 MAX
$(3, 0)$	$-5 \cdot 3$	-17.5
$(3, -1)$	$-5 \cdot 3 + 3 \cdot -1$	-18

6. The following model represents an optimization problem.
Determine the minimum solution.

Optimization Model

Restrictions:

$$x \in \mathbb{W}, y \in \mathbb{W}$$

Constraints:

$$x \geq 0$$

$$y \geq 0$$

$$3x + y \geq 15$$

$$x \leq 10$$

$$x \leq 9$$

Objective function:

$$P = 5x + 3y$$

$$3x + y = 15$$

$$y = -3x + 15$$

$$x = 10$$

$$x = 9$$

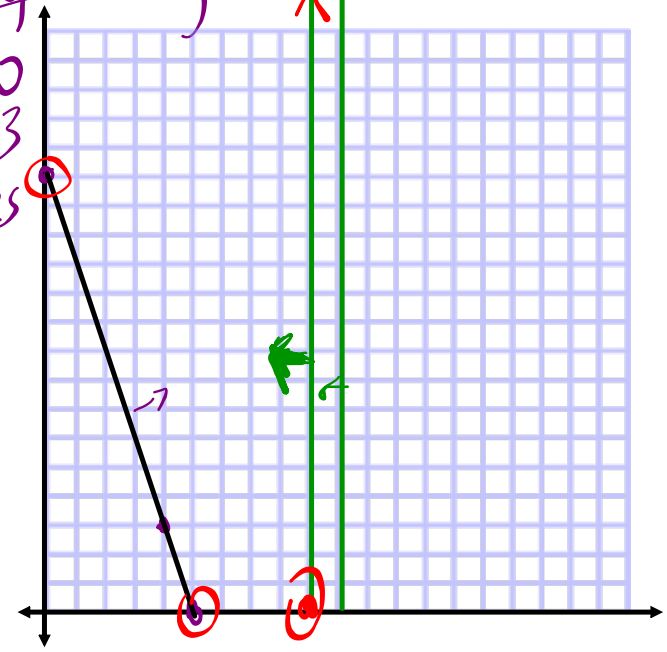
Quad 1

x	y
5	0
0	15

$$\begin{array}{r} LS \geq RS \\ 3(0) + 0 \geq 15 \\ 0 \geq 15 \\ \text{No} \end{array}$$

	$P = 5x + 3y$
(0, 15)	45
(5, 0)	25
(9, 0)	45

MIN



12. A school is organizing a track and field meet.
- There will be no more than 250 events and no fewer than 100 events to be scheduled.
 - The organizers allow 15 min for each track event and 45 min for each field event.
 - They are considering different combinations of track and field events.

T is in minutes

$$* T = 15x + 45y$$

What are the least and greatest amounts of time they should allow?

$x \rightarrow$ # of track events $x \in \mathbb{W}$
 $y \rightarrow$ # of field events $y \in \mathbb{W}$

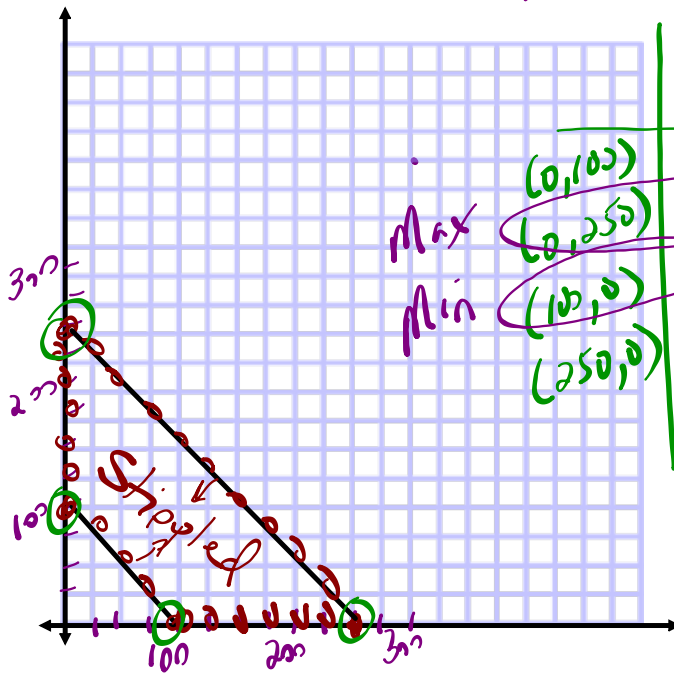
$$x + y \leq 250$$

$$x + y \geq 100$$

$x_{int} (250, 0)$
 $y_{int} (0, 250)$

$x_{int} (100, 0)$
 $y_{int} (0, 100)$

of field events



$$T = 15x + 45y$$

	4500
$45 \cdot 250$	11250
$15 \cdot 100$	1500
$15 \cdot 250$	3750

Max $(0, 250)$
 Min $(100, 0)$

of Track Events

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.

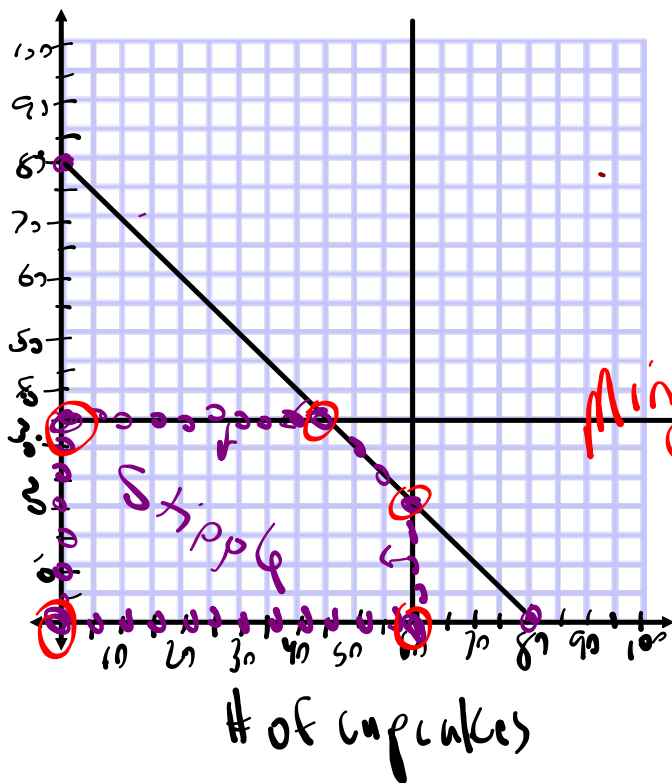
Determine the minimum cost to produce the baked goods.

$x \rightarrow$ # of cupcakes
 $y \rightarrow$ # of mini-loaves
 $C \rightarrow$ total cost

$x \leq 60$ $y \leq 35$

$C = 0.50x + 0.75y$

$x + y \leq 80$
 $x + y = 80$
 $x_{int} (80, 0)$
 $y_{int} (0, 80)$



$C = 0.5x + 0.75y$

$.75 \cdot 35$	26.25
$.5 \cdot 60$	30

HOMEWORK: Test is on WEDNESDAY!!!

***** CHECK AND CORRECT your quiz...on the website!!!**

Review/Practice Questions...

- p. 239: Mid-Chapter Review (Frequently Asked Questions)
- p. 241: Mid-Chapter Practice Questions
- p. 266: Chapter Review (Frequently Asked Questions)
- p. 267: Chapter Practice Questions
- p. 265: Chapter Self-Test (Do this AFTER you practice)

TUESDAY's class will be a Math Help Centre... come prepared with any questions!

