You are going to make and sell bread. A loaf of Irish soda bread is made with 2 c flour and $\frac{1}{4}$ c sugar. Kugelhopf cake is made with 4 c flour and 1 c sugar. You will make a profit of $1.50 on each loaf of Irish soda bread and a profit of $4 on each Kugelhopf cake. You have 16 c flour and 3 c sugar.

a. How many of each kind of bread should you make to maximize the profit?

$I = \#$ of loaves of Irish $\quad 2I + 4K \leq 16$
$K = \#$ of loaves of Kugelhopf

b. What is the maximum profit?

$.25I + K \leq 3$
$K \geq 0$
$I \geq 0$

$I = \#$ loaves of Irish soda bread

$K = \#$ loaves of Kugelhopf cake

$2I + 4K \leq 16$

$0.25I + K \leq 3$

$I \geq 0 \quad K \geq 0$

$(0,0) \quad (0, 3) \quad (4, 2) \quad (8, 0)$
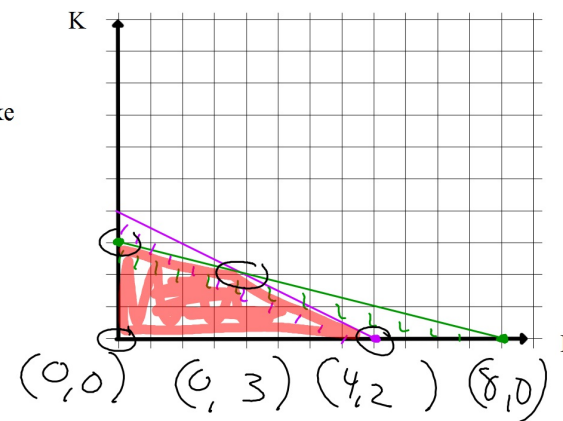
Objective Function: $P = 1.50I + 4K$

	$1.50I + 4K$
$(0, 0)$	0
$(0, 3)$	12
$(4, 2)$	14
$(8, 0)$	12

4 loaves of the Irish soda bread & 2 loaves of the Kugelhopf cake will give a maximum profit of $14

You want to sell some paintings and sculptures at a craft show. You spend 12 hours on each painting and 18 hours on each sculpture but only have 72 hours to work before the show. Each painting costs you $24 to make and each sculpture costs you $12 to make and you only have $96 to spend.

Write and graph a system of four inequalities to model the constraints in this situation.

p = # paintings
s = # sculptures

$12p + 18h \leq 72$

$24p + 12s \leq 96$

$p \geq 0$

$s \geq 0$

P = # paintings
S = # sculptures

$12p + 18s \leq 72$
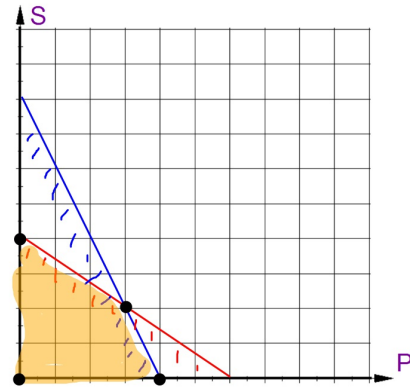
$24p + 12s \leq 96$

$p \geq 0$

$s \geq 0$

p-int = 6
s-int = 4

p-int = 4
s-int = 8

Coordinates of
the feasible region:

(0,0)   (4,0)
(3,2)   (0,4)

If you sell paintings for $45 each and sculptures for $70 each how many of each should you make and sell in order to maximize your income?

Objective Function:

$45p + 70s = I$

if the artist makes and sells 4 sculptures a maximum income of $280 will occur.

(p,s)	$45p + 70s = I$
(0,0)	$0
(0,4)	$280
(4,0)	$180
(3,2)	$275

You can now finish Hwk #19

Sec 3-4

Page 143

#'s 11 and 20

You must use graph paper!