

# Intro lesson #10

## 3-4 Linear Programming Application

- Two types of dressing - garlic and tofu to sell
- Garlic requires 2 qt oil and 2 qt vinegar. Tofu requires 3 qt of oil and 1 qt of vinegar. Jim makes \$3 profit on garlic and \$2 profit on tofu. He has 18 quarts of oil and 10 quarts of vinegar. How many gallons of each to maximize his profit.

	# gal	Oil	Vinegar	Profit
Garlic	x	2x	2x	3x
Tofu	y	3y	1y	2y

$$y \leq -\frac{2}{3}x + 6$$

$$y \leq -2x + 10$$

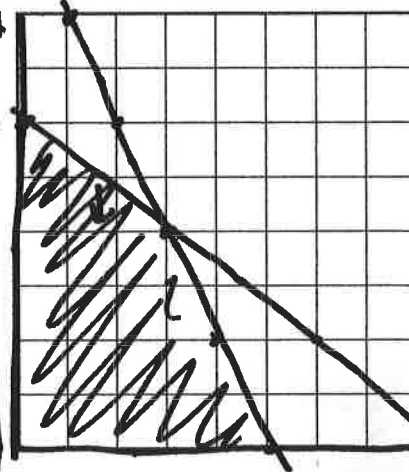
$$x \geq 0$$

$$y \geq 0$$

$$2x + 3y \leq 18$$

$$2x + y \leq 10$$

$$P(x,y) = 3x + 2y$$



$$P(x,y) = 3x + 2y$$

$$(0,0) = 0$$

$$(0,5) = 12$$

$$(5,0) = 15$$

$$(3,4) = 17$$

He needs to make 3 garlic & 4 tofu

## 3-4 Linear Programming Application

- Cheese pizza requires 2 bags of cheese and 1 hour to cook. Super cheesy requires 4 bags of cheese and 1 hour to cook also. The Pizza Shop has 16 bags of cheese and 7 hours of time available. The shop makes \$2 profit on each cheese pizza and \$3 profit on super cheesy pizza. How many of each type of pizza should be made to maximize profits?

	# of	Cheese	Time	Profit
Cheese	x	2x	1y	2x
Super	y	4y	1y	3y

$$x \geq 0$$

$$y \geq 0$$

$$2x + 4y \leq 16$$

$$x + y \leq 7$$

$$y \leq -\frac{1}{2}x + 4$$

$$y \leq -x + 7$$

$$P(x,y) = 2x + 3y$$



$$P(x,y) = 2x + 3y$$

$$(0,0) = 0$$

$$(0,4) = 12$$

$$(7,0) = 14$$

$$(6,1) = 15$$

Should make 6 cheese and 1 super cheese