

# JAMES Zafiri Module 6 Worksheet CSC6023

Pizza Profit = \$50 - \$25 = \$25 for each #pizza = x  
 Sandwich Profit = \$20 - \$5 = \$15 for each #sandwich = y

Objective function for max profit:  $f(x) = 25x + 15y$   $C = (25, 15)$

Constraints: Time constraint:  $8x + 3y \leq 60$

Total items:  $x + y \leq 10$

Also  $x, y \geq 0$

$$8x + 3y = 60$$

$$x + y = 10$$

$$x = 10 - y$$

$$8(10 - y) + 3y = 60$$

$$80 - 8y + 3y = 60$$

$$80 - 5y = 60$$

$$-5y = -20$$

$$y = 4$$

$$x + 4 = 10$$

$$x = 6$$

Chart of the setup

	pizzas	sandwiches	available
time	8	3	60
items	1	1	10

Given the time constraint of one hour (sixty minutes) and 10 total items, there should be 6 pizzas and 4 sandwiches made to maximize the profit: \$210.

Profit:  $25(6) + 15(4) = 150 + 60 = \$210$  Profit for balanced option

Profit for pizza only:  $25(10) + 15(0) = \$250$  profit, but takes 80 minutes, so for 7 pizza it is \$175

Profit for sandwich only:  $25(0) + 15(10) = \$150$  profit

1.)  $8(6) + 3(4) = 48 + 12 = 60 \text{ min} \checkmark$  2.)  $8(10) + 3(0) = 80 \text{ min} \times$   
 $8(7) + 3(0) = 56 \text{ min} \checkmark$  3.)  $8(0) + 3(10) = 30 \text{ min} \checkmark$