

Pizza profit = \$25

$t_p = 8 \text{ min}$

Sandwich profit = \$15

$t_s = 3 \text{ min}$

max items = 10

$T = 60 \text{ min}$

p = number of pizzas

s = number of sandwiches

Objective function: $f(x) = 25p + 15s$

Constraints: Time $60 \geq 8p + 3s$

number of items $10 \geq p + s$

Table

	Pizza	Sandwiches	available
time (min)	8	3	60
number of items	1	1	10

Solution: balanced

$$8p + 3s \leq 60$$

$$s \leq 20 - \frac{8}{3}p$$

$$3(20 - \frac{8}{3}p) + p \leq 10$$

$$20 - \frac{5}{3}p \leq 10$$

$$-\frac{5}{3}p \leq -10 \rightarrow$$

$$10 \geq 6 + 5$$

$$4 \geq 5$$

$$4(15) + 6(25) = \$210$$

$$p \geq 6$$

$$60 \geq 8p + 3s$$

$$60 \geq 8p + 3(0)$$

$$60 \geq 8p$$

$$7.5 \geq p$$

$$7(25) = 175$$

$$10 \geq p + 5$$

$$10 \geq 0 + 5$$

$$10 \geq 5$$

$$10(15) = 150$$

All pizzas = 7 pizzas for \$175

All sandwiches = 10 sandwiches for \$150

Combination = 6 pizzas 4 sandwiches for \$210

6 pizzas and 4 sandwiches is the most profitable combination, selling for \$210 and taking 60 minutes to cook