$$x = pizzas$$

A pizza is sold for \$50 and it costs \$25 to make

A sandwich is sold for \$20 and it costs \$5 to make

sammich: 20 - 5 = 15

Objective Function:

profit = 25x + 15y

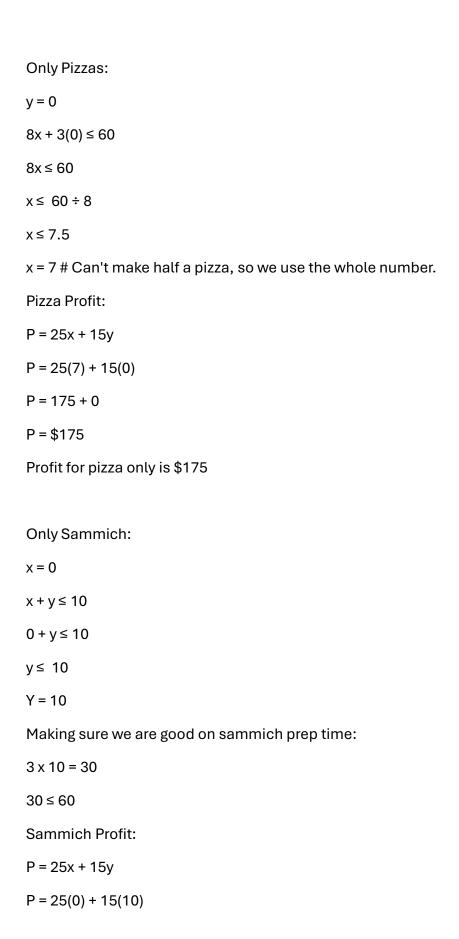
Constraints:

Time: $8x + 3y \le 60$

total_items: $x + y \le 10$

x and y are ints: $x \ge 0$, $y \ge 0$

Item	Time	Num Items	Profit
Pizza - x	8	1	25
Sammich - y	3	1	15
Totals	≤60	≤10	



$$P = 0 + 150$$

Profit for sammich only is \$150

Balanced Options:

$$8x + 3y = 60$$

$$x + y = 10$$

$$y = 10 - x # solving for y$$

$$8x + 3(10-x) = 60 # substituting$$

$$8x + 30 - 3x = 60$$

$$(8x - 3x) + 30 = 60$$

$$5x + 30 = 60$$

$$5x = 60 - 30$$

$$5x = 30$$

$$x = 30 \div 5$$

$$x = 6$$

That means:

$$Y = 10 - x$$

$$Y = 10 - 6$$

$$Y = 4$$

Balanced profit:

$$P = 25x + 15y$$

$$P = 25(6) + 15(4)$$

Quick Validation for time and item limits:

$$8 \times 6 = 48$$

Profit for 6 pizzas and 4 sammich is \$210

Only Pizza: Profit for 7 Pizza = \$175

Only Sammich: Profit for 10 Sammich = \$150

Pizza & Sammich: Profit for 6 Pizza and 4 Sammich = \$210

As we can see, a combination of 6 pizza and 4 sammich coming in at a whopping \$210 is where the fancy food truck would get the best bang for their buck. This keeps that at the 10 item limit and within the 60 min time limit.