

Topic 2

Consumer Choice

Preferences vs Choice

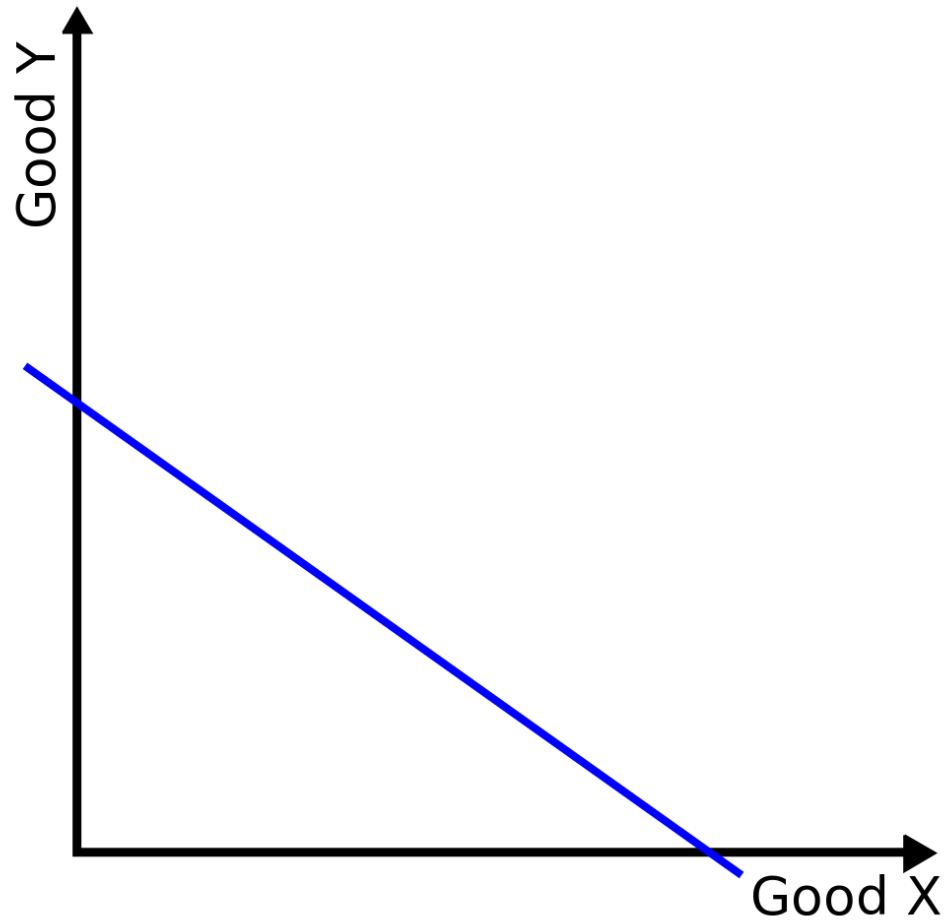
- Preferences: what the consumer likes or dislikes
- Choice: what the consumer actually buys

Key Idea: Preferences + Prices & Income = Choice
Or IC's + Budget Line = Consumer Optimum

Notation

- Assume only two goods: Good X and Good Y
- Price of X: P_x Quantity of X purchased: X
- Price of Y: P_y Quantity of Y purchased: Y
- Income: I
- Expenditure on basket (X, Y) : $P_x X + P_y Y$

Definitions



- Budget constraint / Budget set

- $P_x X + P_y Y \leq I$

i.e. all affordable bundles

- Budget line

- $P_x X + P_y Y = I$

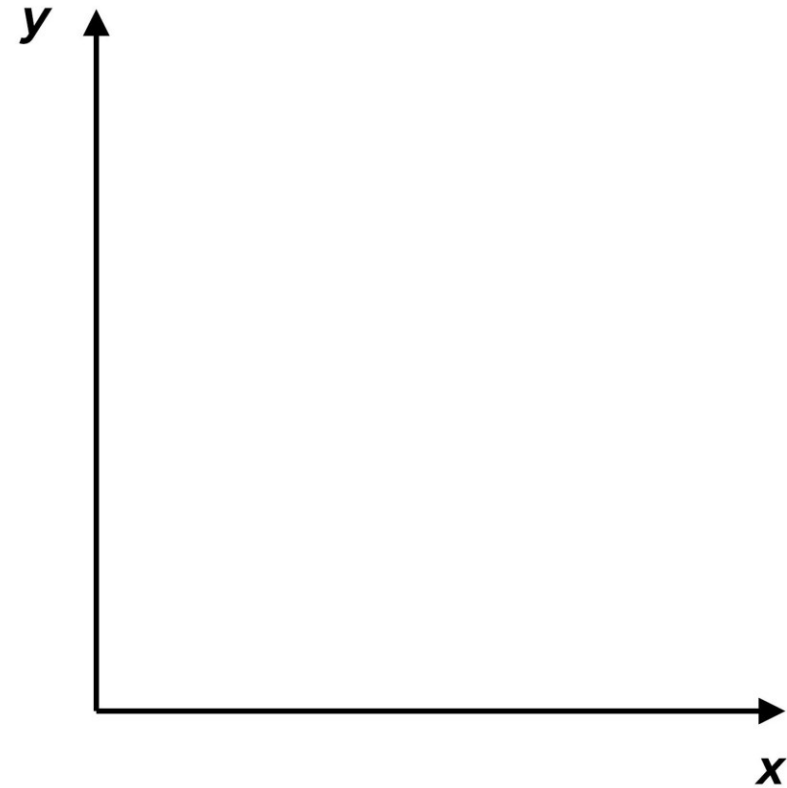
i.e. all bundles that use up the consumer's income

Budget Line – Example

Suppose

- $I = 800$
- $P_x = 20$
- $P_y = 40$

Equation:

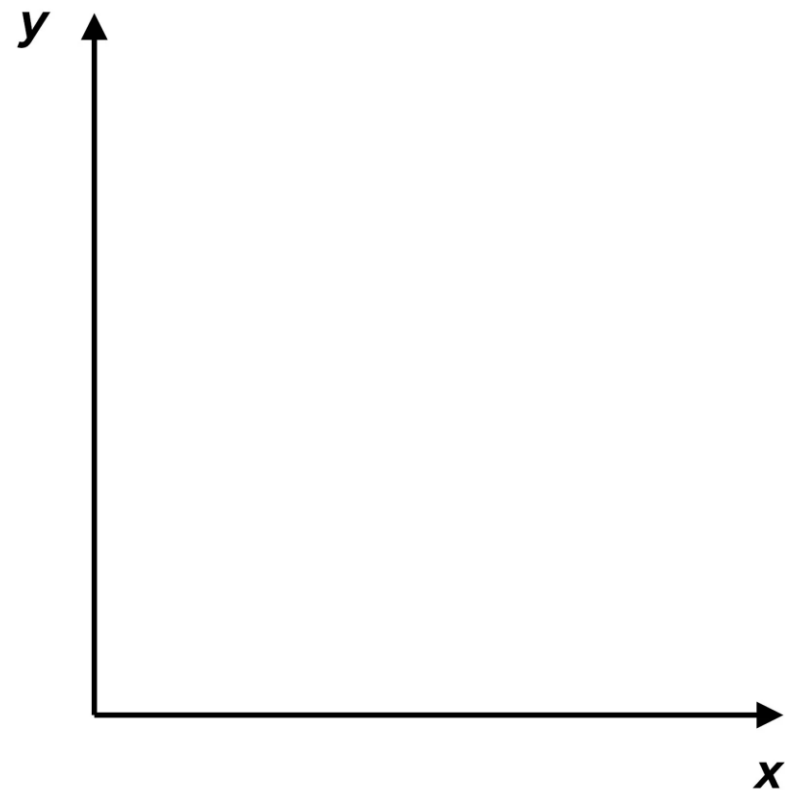


Budget Line – Example

What happens when...
income rises or falls?

Suppose

- $I = 800 \rightarrow I' = 1000$
 $\rightarrow I'' = 400$
- $P_x = 20$
- $P_y = 40$



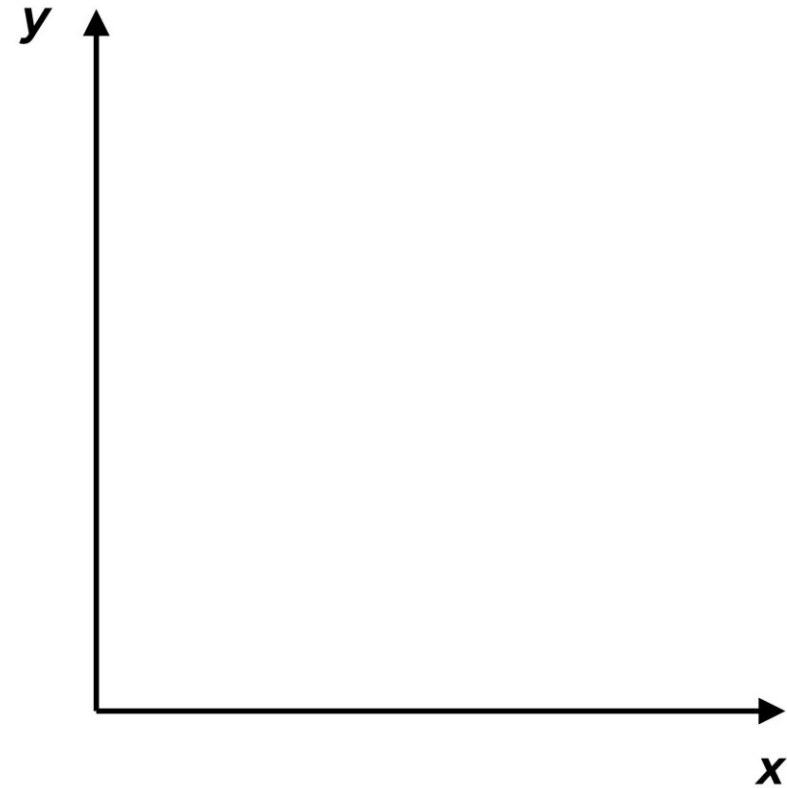
Budget Line – Example

What happens when...

P_x rises or falls?

Suppose

- $I = 800$
- $P_x = 20 \rightarrow P_x' = 40$
 $\rightarrow P_x'' = 10$
- $P_y = 40$



Budget Line – Example



LEARNING-BY-DOING EXERCISE 4.1

Good News/Bad News and the Budget Line

Suppose that a consumer's income (I) doubles and that the prices (P_x and P_y) of both goods in his basket also double. He views the doubling of income as good news because it increases his purchasing power. However, the doubling of prices is bad news because it decreases his purchasing power.

Problem What is the net effect of the good and bad news?

Slope of the Budget Line

$$\text{BL: } P_x X + P_y Y = I$$

Optimal Choice

Consumer Problem: $\max U(X, Y) \quad \text{s.t.} \quad P_x X + P_y Y = I$

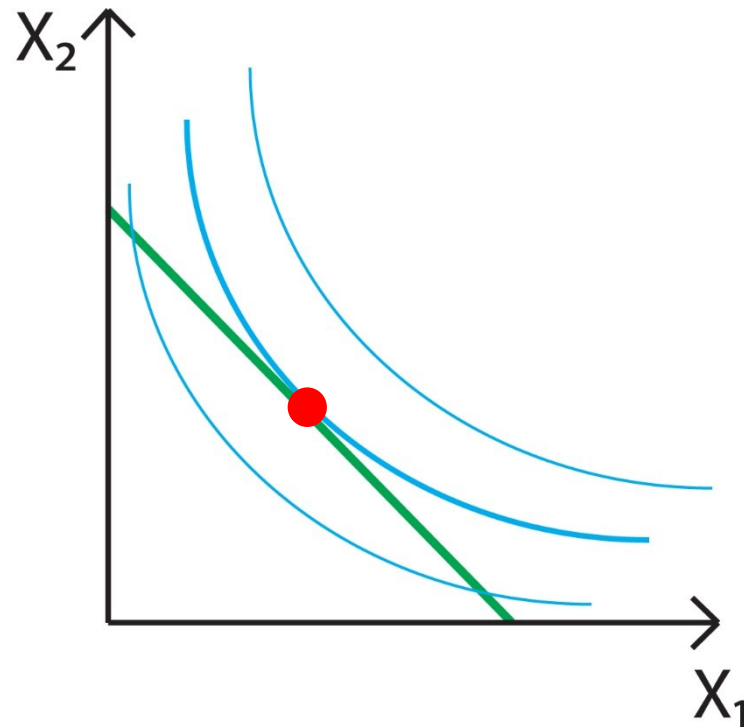
i.e. the consumer chooses the optimal X^* and Y^* to maximize his utility subject to his income

Consumer Optimum:

- 1. The choice must give the highest utility.**
- 2. The choice must satisfy the budget constraint.**

Optimal Choice

That is, the optimal choice is the bundle on the highest IC (maximizing U) and on the BL (using all income).



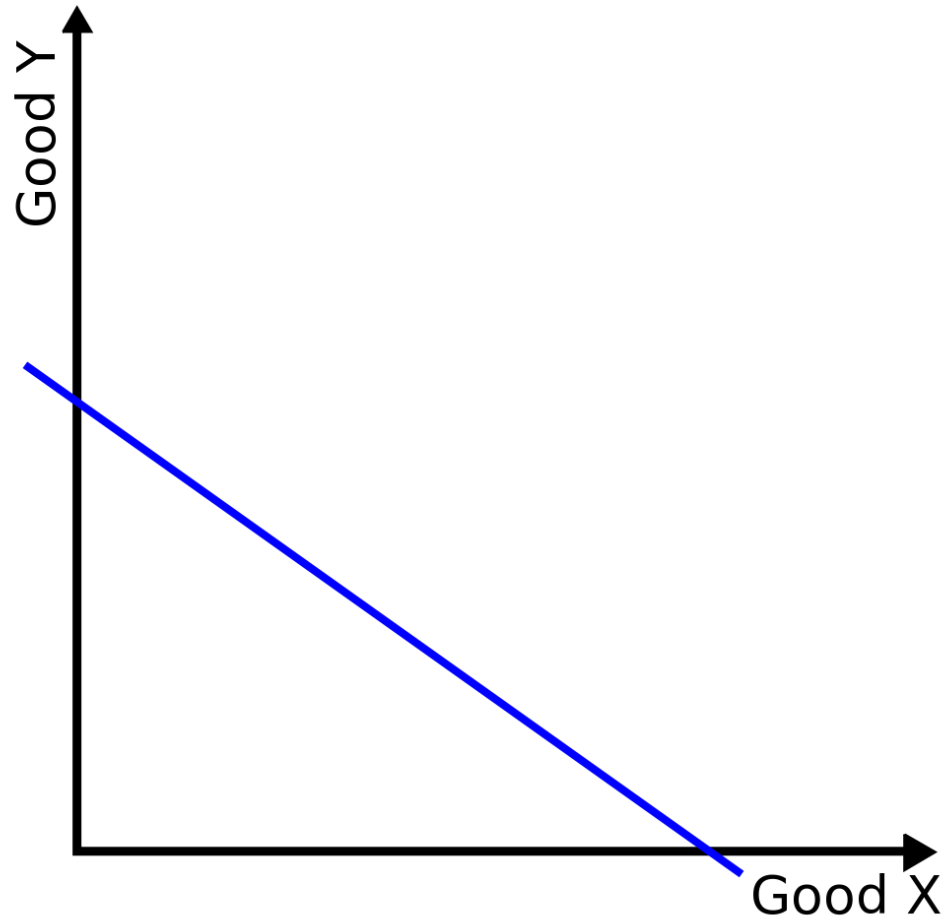
Optimal Choice

Three Possible Solutions to Consumer Choice:

1. Interior Solution: there is one solution where the consumer buys both goods, i.e. X^* and $Y^* > 0$
2. Corner Solution: there is one solution where the consumer buys one good, i.e. X^* or $Y^* = 0$
3. Infinitely Many Solutions

Optimal Choice – Interior Solution

Case 1: Interior Solution



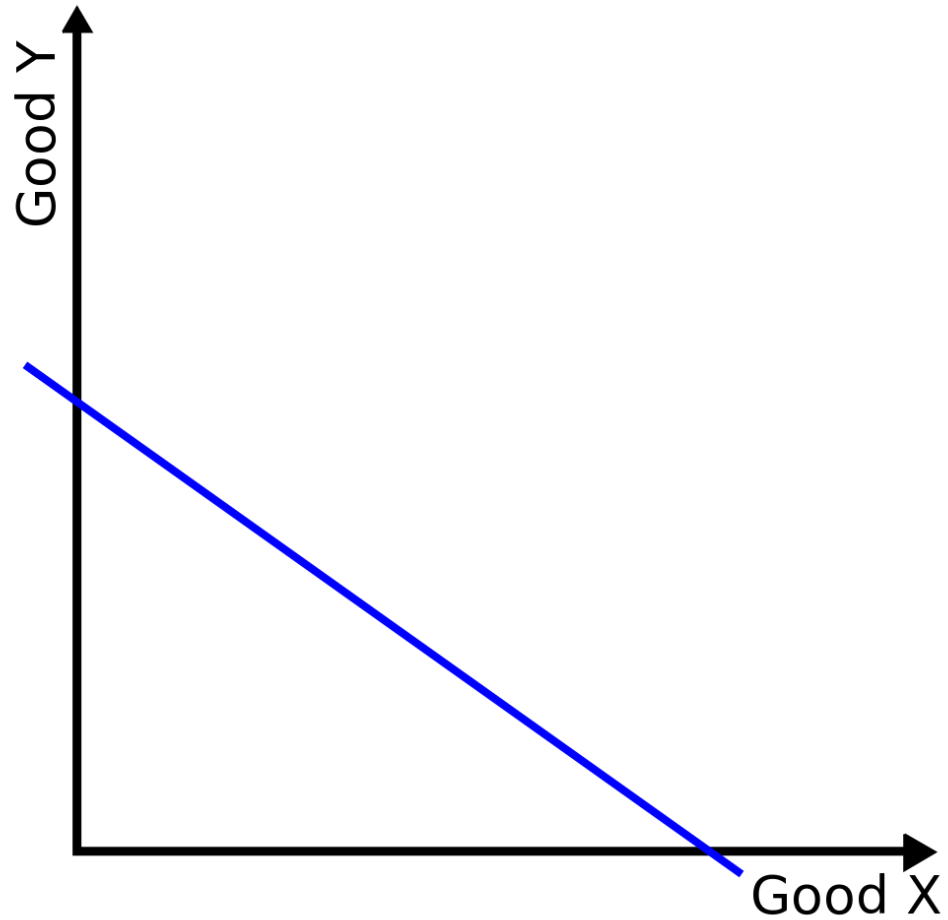
Optimal Choice – Interior Solution

Optimality Condition: “Bang for the Buck”

Optimal Choice – Interior Solution

Optimality Condition: “The Two Rates of Exchange”

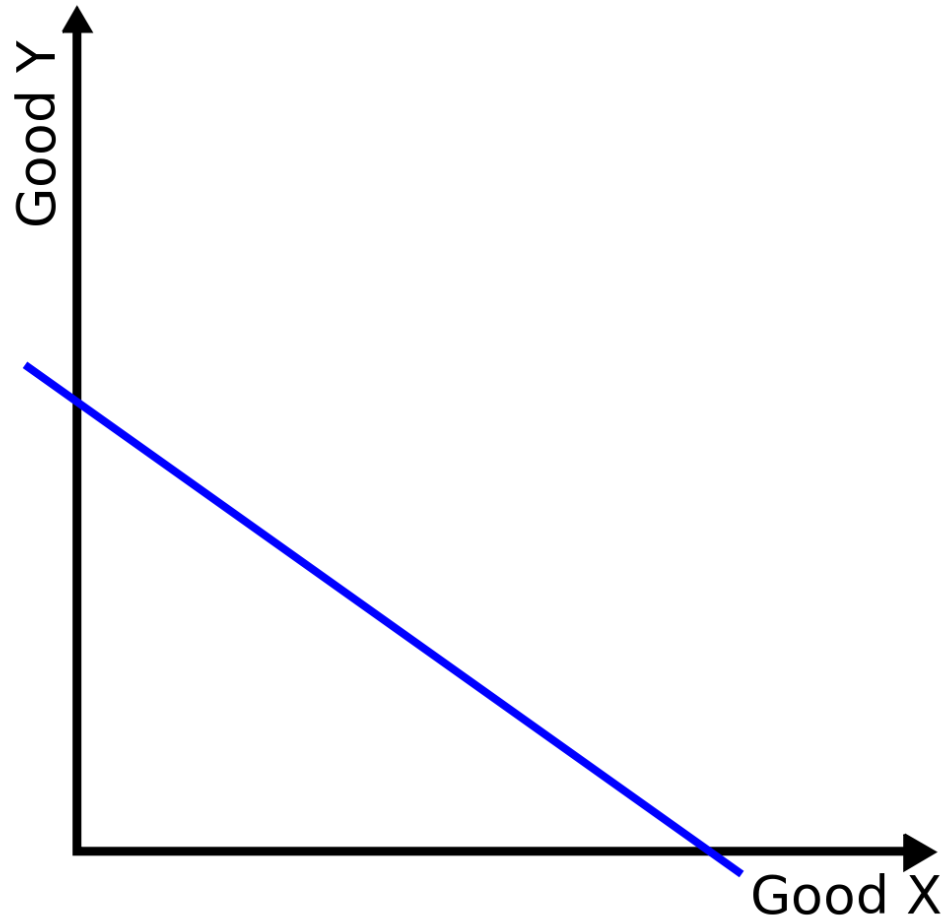
Optimal Choice – Interior Solution



Non-Optimal Bundles

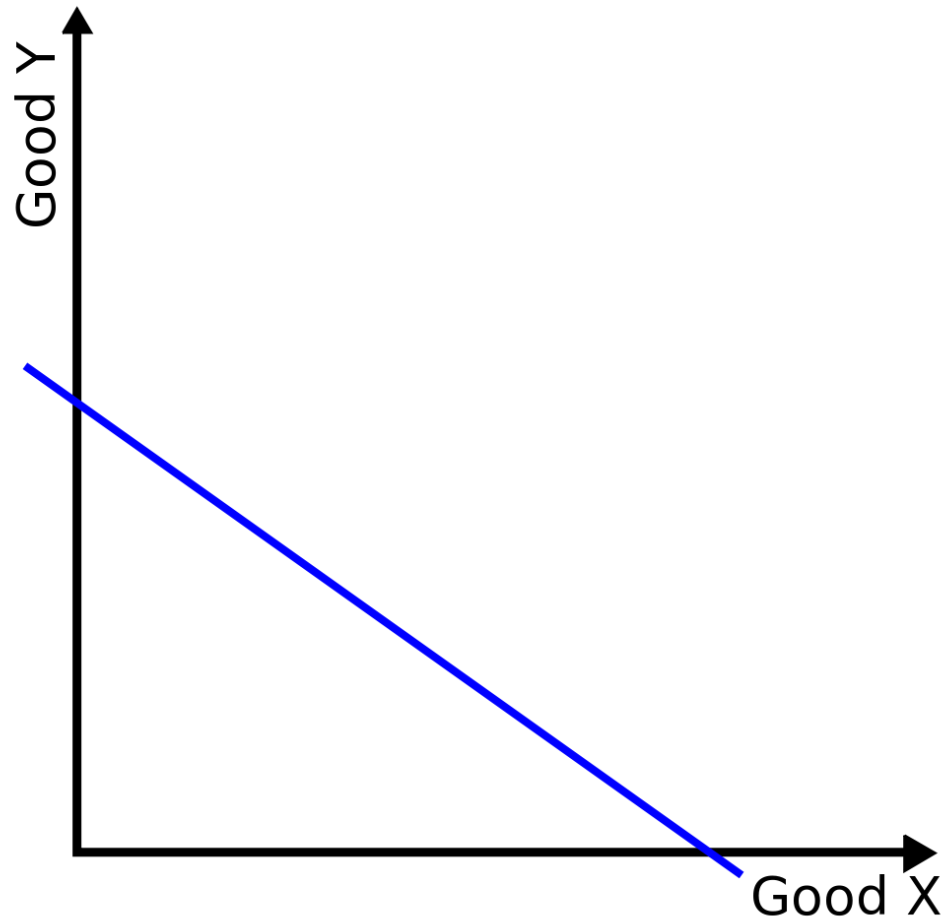
Optimal Choice – Corner Solution

Case 2: Corner Solution



Optimal Choice – Many Solutions

Case 3: Many Solutions



Optimal Choice – Exercise



LEARNING-BY-DOING EXERCISE 4.2

Finding an Interior Optimum

Eric purchases food (measured by x) and clothing (measured by y) and has the utility function $U(x, y) = \sqrt{xy}$.

He has a monthly income of \$800. The price of food is $P_x = \$20$, and the price of clothing is $P_y = \$40$.

Problem Find Eric's optimal consumption bundle.

Optimal Choice – Exercise



LEARNING-BY-DOING EXERCISE 4.3

Finding a Corner Point Solution

David is considering his purchases of food (x) and clothing (y). He has the utility function $U(x, y) = xy + 10x$, with marginal utilities $MU_x = y + 10$ and $MU_y = x$. His income is $I = 10$. He faces a price of food $P_x = \$1$ and a price of clothing $P_y = \$2$.

Problem What is David's optimal basket?