

These are exercises to practice the material presented in

## Part II Theory of Consumer Choice

### Section 3 Identifying the Consumer Optimum

The exercises 1 and 2 are variations of the classroom example:

Income:  $I = 300$

Price of apples:  $P_A = 2$

Price of bananas:  $P_B = 1$

Utility function:  $U(x_A; x_B) = x_A^2 \cdot 2x_B$

#### Exercise 1

The price of apples remains at  $P_A = 2$ . The price of bananas falls from  $P_B = 1$  to  $P_B = 0.50$ .

How many apples and bananas will the individual consume in his or her new consumer optimum?

#### Exercise 2

The price of bananas is  $P_B = 1$ . The price of apples increases from  $P_A = 2$  to  $P_A = 4$ .

How many apples and bananas will the individual consume in his or her new consumer optimum?

#### Exercise 3

Another individual's preferences and income situation are described by the following facts:

Income:  $I = 100$

Price of good 1:  $P_1 = 2$

Price of good 2:  $P_2 = 6$

Utility function:  $U(x_1; x_2) = x_1^{0.4} \cdot x_2^{0.6}$

The price of good 1 increases from  $P_1 = 2$  to  $P_1 = 4$ .

1. Identify the initial and the new consumer optimum.  
In other words: Calculate the optimal quantities before and after the price change.
2. Draw the two situations in one diagram.  
Use the following scale:      horizontal axis:      5 units of  $x_1 = 1$  cm  
   vertical axis:      5 units of  $x_2 = 2.5$  cm.