EXERCISES CHAPTER 9

Exercise 1. A consumer has an endowment of $w_1 = 2$ units of good 1 and $w_2 = 2$ units of good 2. The prices are $p_1 = 4$ and $p_2 = 2$.

(1) Write down the consumer's budget equation in terms of their endowment.
(2) Sketch the budget line. Make sure to label the slope and intercepts.
(3) Suppose the consumer has (gross) demands $x_1 = 1$ and $x_2 = 4$. Are they a net buyer or seller of good 1? What about good 2?
(4) What is the **net demand** for each good above?
(5) Suppose the price of good 1 increases to $p_2 = 4$. Add this budget line to your graph.

Exercise 2. A consumer has an endowment of $w_1 = 10$ units of good 1 and $w_2 = 5$ units of good 2. Prices are initially $p_1 = 2$ and $p_2 = 2$.

(1) Write down the consumer's budget equation in terms of their endowment.
(2) Sketch the budget line. Make sure to label the slope and intercepts.
(3) Suppose the consumer has (gross) demands $x_1 = 12$ and $x_2 = 3$. Are they a net buyer or seller of good 1? What about good 2?
(4) What is the **net demand** for each good above?
(5) Suppose the price of good 1 decreases to $p_1 = 1$. Is the consumer better off, worse off, or can you not tell?

Exercise 3. A consumer has utility $u(x_1, x_2) = x_1 x_2$, an endowment $w_1 = 4$, $w_2 = 8$, and prices $p_1 = 2$, $p_2 = 1$.

(1) Find the consumer's (gross) demand for x_1 and x_2.
(2) Determine whether the consumer is a net buyer or seller of each good.

Exercise 4. A consumer has utility function

$$u(x_1, x_2) = x_1 + \ln(x_2)$$

and endowments $w_1 = 2$, $w_2 = 10$. Prices are $p_1 = 5$ and $p_2 = 1$.

(1) Write down the consumer's budget equation.
(2) What is the consumer's (gross) demand for x_1 and x_2?
(3) Is this consumer a net buyer or seller of x_2? What about x_1?
(4) If $p_2 = 1$, what would the price p_1 need to be to make the consumer neither a buyer nor a seller of x_2?