Intermediate Microeconomics (Fall 2023) Lecture 4 Consumer Choice

Part I

• Budget Constraint (also called Budget Line) — All _________ of goods for which the _______ to _____.

of ______ is ______ to _____.

Rearrange algebra

⇒

- o Budget line is the ______ between _____ bundles.
- o Economic Meanings of the Line
 - Vertical Intercept = _____
 - ① The _____ of ___ could be _____ is ____.
 - ② ______.
 - Horizontal Intercept = ________
 - ① The _____ of ___ could be ____ if ___ is ____.
 - 2
 - Slope = _____ = ____



(the _____ on the ______):
in order to _____ of ____, have to

_____ of _____.

• Changes in Budget Line

)	changes:			
	of the			
	■ $M \uparrow \Rightarrow \text{Shift I}$	BL		
	■ $M \downarrow \Rightarrow Shift I$	BL		
)		changes:		
	and the			
	• A			in the
		of	is	
	to a		in	·

Exercise 1

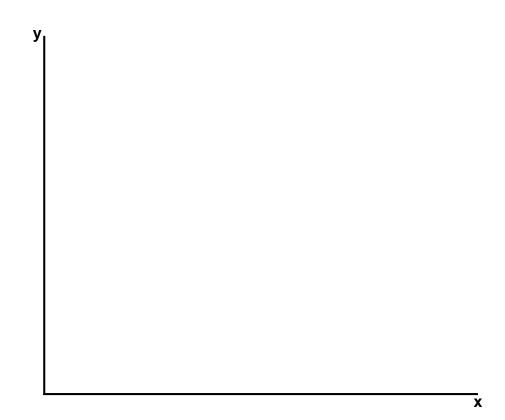
If prices and income in a two-good society double, what will happen to the budget line?

- A. The intercepts of the budget line will increase.
- B. The intercepts of the budget line will decrease.
- C. The slope of the budget line may either increase or decrease.
- D. Insufficient information is given to determine what effect the change will have on the budget line, but we know society is worse off.
- E. There will be no effect on the budget line.

Part II

Consumer Choice – ______ the ______.

⇒



- Point A:
- Point B:
- Point C:
- Point D:

> At Point C, the ______ is _____ to an _____

•

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•

Exercise 2

Utility function is given by U (w, z) = $w^{\frac{1}{2}}z^{\frac{1}{2}}$, $P_w = 1$, $P_z = 2$, M = 50, find the best choice for a consumer.

Exercise 3

Monica consumes only goods A and B. Suppose that her marginal utility from consuming good A is equal to $\frac{1}{Q_A}$, and her marginal utility from consuming good B is $\frac{1}{Q_B}$. If the price of A is \$0.5, the price of B is \$4, and Monica's income is \$120, how much of good A will she purchase?

- A. 0
- B. 12
- C. 24
- D. 48
- E. 120

Exercise 4

Suppose your utility from consuming X and Y is expressed as $u(X, Y) = \ln(XY)$, where $\ln(XY)$ is the natural logarithm operator. Given this information, which of the following statements is NOT true?

- A. The marginal utility of X may be positive or negative depending on the quantity of X and Y consumed.
- B. The marginal utility of X does not depend on the quantity of Y consumed.
- C. The marginal utility of Y does not depend on the quantity of X consumed.
- D. All of these statements are not true.

Part III

Examples of Optimal Consumer Choice

>	Demanded Bundle – The		of the consumer's
	i.e., the		, of Good 1 and
	Good 2 at some set of	and	
>	Demand Function – The function that i	relates the	
	to the different values of		
	i.e., for each different set of		
	there will be a different	0	f
	that is the		of the consumer
•	Perfect Substitutes Take the example of substituting Good 1	for Good 2 at a rate of on	e-to-one.
	⇒ Optimal choices (demand function) of	Good 1:	rihan.
	$x_1 = \begin{cases}$		whenwhen
			when
	⇒ ① If two goods are perfect s	ubstitutes, the consume	er will purchase the

2 If two goods are perfect substitutes and have the same price, the consumer

______ to purchase.

• Perfect Complements

Take the example of consuming Good 1 and Good 2 in a page	roportion of one-to-one.
⇒	
⇒ The consumer is purchasing	O
	the
are. Let this	be denoted by
⇒ Budget constraint:	
\Rightarrow Solving for x gives the optimal choices (demand func	ctions) of Good 1 and Good 2
⇒ Since the two goods are always consumed if the consumer were	
that a	
Neutrals and Bads	
If Commodity 1 is a good and Commodity 2 is a neutral or	a bad
⇒ The consumer would on the	
⇒ The optimal choices (demand functions):	

where		
:		
	::	
::	to	
the		
;;		
in the		
by	, ;	assuming that
, i.e.,		
Lagrange's theorem states that	must	

- Cobb-Douglas Preferences
 - $\ \, \circ \quad \text{ The Exponent Representation: } u \; (x_1, \, x_2) = x_1^c x_2^d \\$

 $\ \, \circ \quad \text{The Log Representation: } u\;(x_1,\,x_2) = c\;ln\;x_1 + d\;ln\;x_2$

> Property of the Cobb-Douglas Preferences

If the consumer cor	units of	
⇒		
⇒		
	the	for
⇒		
⇒ • The fraction	n of income that the consumer	spends on Good 1 is
■ The fractio	n of income that the consumer	spends on Good 2 is
⇒ The Cobb-Dougl	as consumer always spends a	
of	on	
and the	of the	is determined
		_ in the Cobb-Douglas function
⇒ It is often conve	enient to choose a representat	ion of the Cobb-Douglas utility
function in which	n the	·
⇒ If		, immediately
interpret	as the fraction of income	spent on