

3rd EXAM: NOTATION WE USE IN CLASS

Consumer theory

U=utility

X=consumption of commodity X

Δ =change in

MU=marginal utility; $MU_X = \frac{\Delta U}{\Delta X}$

\bar{U} =fixed utility along an indifference curve

p or P=price

I=income

$MRS = \left| \frac{\Delta Y}{\Delta X} \right| = \left| \frac{MU_X}{MU_Y} \right|$ =marginal rate of substitution=slope of indifference curve

$MRS = \left| \frac{\Delta Y}{\Delta X} \right| = \left| \frac{MU_X}{MU_Y} \right| = \frac{P_X}{P_Y}$, i.e., slope of indifference curve equals slope of budget line

$\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y}$ is the Principle of Equal Marginal Utilities per Dollar

Production theory

q or Q=output

K=capital

L=labor

$Q = F(\bar{K}, L) = f(L)$ =short-run production function with fixed capital and variable labor

$Q = F(K, L)$ =long-run production function with variable capital and labor

\bar{K} =fixed capital

$AP_L = \frac{Q}{L}$ =average product of labor=productivity

$MP_L = \frac{\Delta Q}{\Delta L}$ =marginal product of labor

$MP_K = \frac{\Delta Q}{\Delta K}$ =marginal product of capital

C or TC=total cost

FC=fixed cost

VC=variable cost

$AFC = \frac{FC}{Q}$ =short-run average fixed cost

$AVC = \frac{VC}{Q}$ =short-run average variable cost

$ATC = \frac{TC}{Q}$ =short-run average total cost

$ATC = AFC + AVC$

\bar{Q} =fixed output along an isoquant

w=wage rate

i=user cost of capital

$LAC = \frac{TC}{Q}$ = long-run average total cost

$LMC = \frac{\Delta TC}{\Delta Q}$ = long-run marginal cost

$MRTS = \left| \frac{\Delta K}{\Delta L} \right| = \left| \frac{MP_L}{MP_K} \right|$ = marginal rate of technical substitution = slope of isoquant

$MRTS = \left| \frac{\Delta K}{\Delta L} \right| = \left| \frac{MP_L}{MP_K} \right| = \frac{w}{i}$, i.e., slope of isoquant equals slope of isocost line

$\frac{MP_L}{w} = \frac{MP_K}{i}$ is the Principle of Equal Marginal Products per Dollar

Π =profit

R=revenue

$M\Pi$ =marginal profit = $\frac{\Delta \Pi}{\Delta Q}$

MR =marginal revenue = $\frac{\Delta R}{\Delta Q}$

MC =marginal cost = $\frac{\Delta C}{\Delta Q}$

$P=MC$ is the optimality condition for perfect competition

$P \geq AVC$ is the short-run no-shut-down condition