

AP Microeconomics — Unit 3 Test

"Must Know" Study Checklist (UPDATED)

Instructions: Check off each item once you can confidently answer it. Do not move on until every box is checked.

Costs of Production — Definitions & Formulas

- ☐ Do you know how to calculate Average Fixed Cost (AFC) from total cost data (and how to identify fixed cost when quantity = 0)?
- ☐ Do you know how to calculate Average Variable Cost (AVC) from total variable cost and quantity?
- ☐ Do you know how to calculate Average Total Cost (ATC) and the relationship $ATC = AFC + AVC$?
- ☐ Do you know how to calculate Marginal Cost (MC) from a total cost table?
- ☐ Do you know how to find Total Fixed Cost (TFC) when given total cost, quantity, and AVC?
- ☐ Do you know why the gap between ATC and AVC shrinks as output increases?

Accounting vs. Economic Profit

- ☐ Do you know the difference between explicit costs and implicit costs?
- ☐ Do you know how to calculate accounting profit vs. economic profit?
- ☐ Do you know what it means when a firm covers accounting costs but incurs economic losses?

Short Run vs. Long Run

- ☐ Do you know the defining characteristic of the short run (at least one fixed input)?
- ☐ Do you know the defining characteristic of the long run (all inputs variable)?
- ☐ Do you know how property taxes or lump-sum fees affect short-run profit-maximizing quantity (fixed vs. variable cost impact)?
- ☐ Do you know how a change in a variable cost (e.g., shipping per order) affects the short-run profit-maximizing quantity?

Production Function & Product of Labor

- ☐ Do you know how to calculate Marginal Product (MP) of labor from a production table?
- ☐ Do you know how to calculate Average Product (AP) of labor?
- ☐ Do you know the relationship between MP and AP (when $MP > AP$, AP rises; when $MP < AP$, AP falls)?
- ☐ Do you know what diminishing marginal returns looks like in a production table?
- ☐ Do you know the relationship between diminishing marginal product and the shape of the marginal cost curve?

Economies & Diseconomies of Scale

- ☐ Do you know what economies of scale means and how it appears on the LRATC curve?
- ☐ Do you know what diseconomies of scale means and how it appears on the LRATC curve?
- ☐ Do you know the difference between short-run ATC decreasing and long-run ATC decreasing?

Perfect Competition — Firm Behavior

- ☐ Do you know the shape of the demand curve facing a perfectly competitive firm (and why)?
- ☐ Do you know the shape of the demand curve facing a firm hiring in a perfectly competitive labor market?

- ☐ Do you know the profit-maximizing rule ($MR = MC$) and how to apply it using marginal analysis?
- ☐ Do you know how to identify the profit-maximizing quantity from a cost table given a market price?
- ☐ Do you know how to calculate economic profit at the profit-maximizing quantity ($TR - TC$, or $(P - ATC) \times Q$)?

Short-Run Supply & Shutdown Decision

- ☐ Do you know what portion of the MC curve is the firm's short-run supply curve?
- ☐ Do you know the shutdown rule (price vs. AVC)?
- ☐ Do you know how to decide whether to produce, continue producing, or shut down given P, MC, AVC, and AFC?

Long-Run Adjustment in Perfect Competition

- ☐ Do you know how the number of firms adjusts in the long run when firms earn positive economic profit?
- ☐ Do you know how the number of firms adjusts in the long run when firms earn economic losses?
- ☐ Do you know what happens to market price in the long run as firms enter or exit?
- ☐ Do you know the condition for long-run equilibrium in perfect competition ($P = \min ATC$, zero economic profit)?
- ☐ Do you know the relationship between MC and ATC at the minimum point of ATC?

Elasticity Applications (Income & Cross-Price)

- ☐ Do you know how to interpret income elasticity of demand (positive = normal, negative = inferior)?
- ☐ Do you know how to interpret cross-price elasticity of demand (positive = substitutes, negative = complements)?
- ☐ Do you know how to predict the effect on demand for a related good when the price of another good changes, using cross-price elasticity?
- ☐ Do you know how to combine a long-run price change with income/cross-price elasticity to predict demand changes in related markets?

Government Intervention — Price Controls

- ☐ Do you know what a price ceiling is and when it is binding (below equilibrium)?
- ☐ Do you know the effect of a binding price ceiling on total economic surplus and deadweight loss?
- ☐ Do you know what a price floor is and when it is binding (above equilibrium)?
- ☐ Do you know the effect of a binding price floor on deadweight loss?

Diagram Skills

- ☐ Do you know how to draw a correctly labeled perfectly competitive firm diagram (MC, ATC, AVC, $MR = P = D$) with all axes and curves labeled?
- ☐ Do you know how to show directional changes (shifts) on a diagram clearly?
- ☐ Do you know how to show profit or loss as a shaded rectangle on the firm's diagram?
- ☐ Do you know how to draw a side-by-side market and firm diagram showing long-run adjustment?

Final Self-Check

- ☐ Can you respond to a multi-part FRQ in order, labeling each part (a), (b), (c)...
- ☐ Do you remember to show your work on every "Calculate" question?
- ☐ Do you remember to explain your reasoning on every "Explain" question (not just state the answer)?