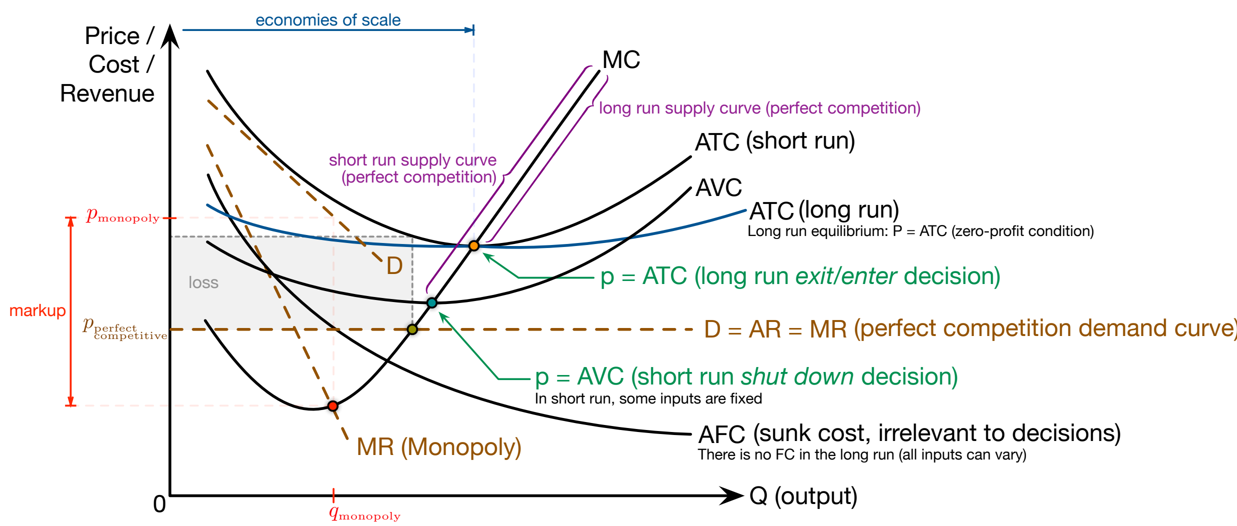
Handout 6 (Final Review)

1 Housekeeping

- Final exam (Ch7-8 and Ch13-16) on Tuesday, 6/13, from 4-6pm.
  - Bring F-288 scantron, a pencil, and your student ID.
- Homework for Ch15 + Ch16 is due next Monday, 6/12.

2 Cost curves



3 Markets

	Perfect Competition	Monopoly	Monopolistic Competition
Number of sellers	Many	1	Many
Free entry/exit	Yes	No	Yes
Long run economic profits	0	positive	0
Products	same	-	differentiated
Market Power	price-taker	Yes	Yes
Demand curve	Horizontal	Downward sloping	Downward sloping

4 Profit

- Accounting profit = TR (total revenue) − total explicit costs (e.g. wage)
- Economic profit = TR − TC (total costs) = TR − (explicit cost + $\underbrace{\text{implicit costs}}_{\text{opportunity cost}}$)
- Competitive market: economic profit = 0, accounting profit ≥ 0.

5 Costs and Revenue

- FC (fixed cost): remains constant, doesn't change with the quantity produced.
- MC (marginal cost): the additional increment in the total cost after producing the particular unit.
- VC (variable cost): the cost that varies with the quantity produced.
- TC (total cost) = FC + VC = AFC × Q + AVC × Q = ATC × Q.
- TR (total revenue) = P × Q.
- MR (marginal revenue): the additional increment in total revenue after producing the particular unit.

6 Production scale

When Q↑:

- ATC↓: Economies of Scale.
- ATC remains the same: Constant returns to Scale.
- ATC↑: diseconomies of scale.

7 Marginal Analysis (compare marginal revenue and marginal cost)

- MR > MC: benefit of producing this particular unit is still greater than the cost → produces more.
- MR = MC: optimal production decision rule → obtain the optimal quantity supplied q^*
  - firm makes the production decision q^* → given this quantity level, the firm utilizes consumer's demand curve (D) to determine the market price p^* that they should charge the consumers.
- MR < MC: producing this particular unit has no benefit → decease production.

8 Price Discrimination

- First degree: Firm sets the price for each individual consumer equal to their valuation/willingness to pay (perfect price discrimination) → maximize producer's surplus, no consumer surplus
- Second degree: Phone plan imposes a higher rate once a specified amount of minutes has been used (non-linear pricing).
- Third degree: Theater divide movie goers into seniors, adults, and children (market segmentation).

9 Exercises

1. If a firm experiences constant returns to scale at all output levels, then its long-run average total cost curve would
   (a) slope downward.
   (b) be horizontal.
   (c) slope upward.
   (d) slope downward for low output levels and upward for high output levels.

2. Suppose a firm in a competitive market increases its output by 32%. As a result, the price of its output is likely to
   (a) remain unchanged.
   (b) decline by 32%.
   (c) decline by more than 32%.
   (d) increase by less than 32%.

3. In both perfect competition and monopolistic competition, each firm
   (a) has no monopoly power.
   (b) sells identical products.
   (c) can enter or exit the market freely.
   (d) faces a downward-sloping demand curve its product.

4. When a monopolist increases the amount of output that it produces and sells, average revenue
   (a) decreases, and marginal revenue increases.
   (b) decreases, and marginal revenue decreases.
   (c) increases, and marginal revenue decreases.
   (d) increases, and marginal revenue increases.

5. Which of the following represents the firm's short-run condition for shutting down?
   (a) Shut down if $P < ATC$.
   (b) Shut down if $TR < TC$.
   (c) Shut down if $TR < VC$.
   (d) Shut down if $TR < FC$.

6. If the cost of producing chairs decreases causing the price of chairs to decrease, consumer surplus in the chair market will
   (a) increase for some buyers and decrease for other buyers.
   (b) remain constant.
   (c) decrease.
   (d) increase.

7. If the size of a tax increases, tax revenue
   (a) remains the same.
   (b) decreases.
   (c) increases.
   (d) may increase, decrease, or remain the same.

8. What is the decrease in the equilibrium quantity of smartphones after the imposition of an $10 per smartphone tax, given that the market initially had an equilibrium quantity of 140 smartphones per month and the government collects $900 per month in tax revenue?
   (a) 100 per month.
   (b) 90 per month.
   (c) 50 per month.
   (d) 230 per month.

9. Olivia, a former partner at a law firm earning $160,000 per year, made the bold decision to leave the firm and establish her own law practice. During the first year of her independent venture, Olivia successfully generated revenues of $315,000, but she also faced explicit costs amounting to $200,000. What is Olivia's economic profit from her inaugural year in her own law practice?
   (a) $155,000.
   (b) $115,000.
   (c) $-45,000.
   (d) $275,000.

10. Which output level would a benevolent social planner choose to maximize total surplus in the case of a monopoly firm?
   (a) MR intersects the demand curve.
   (b) MR = MC.
   (c) MC intersects the demand curve.
   (d) MR exceeds MC by the greatest amount.

11. What is the total fixed cost of Acme Manufacturing if its average variable cost is $2, the average total cost is $10, and it produces 500 units of output?
   (a) $5,000.
   (b) $4,000.
   (c) $6,000.
   (d) $1,000.

12. For a firm that uses only labor as its variable input and produces zero output without hiring any workers, the average total cost is $50 when it produces 8 units. The marginal cost of the ninth unit is $150. What's the average total cost when the firm produces 9 units?
   (a) $55.55.
   (b) $27.78.
   (c) $50.00.
   (d) $61.11.

13. If a competitive firm is currently producing a level of output at which marginal cost exceeds marginal revenue, then
    (a) total revenue exceeds the total cost.
    (b) total cost exceeds total revenue.
    (c) a one-unit increase in output will increase the firm's profit.
    (d) a one-unit decrease in output will increase the firm's profit.

14. When a tax is levied on buyers, the
    (a) buyers bear the entire burden of the tax.
    (b) tax creates a wedge between the price buyers pay and the price sellers receive.
    (c) supply curves shifts upward by the amount of the tax.
    (d) tax has no effect on the well-being of sellers.

15. A firm that produces and sells furniture gets to choose
    (a) the size of its factories in the short run but not in the long run.
    (b) which short-run average-total-cost curve to use in both the short run and the long run.
    (c) the number of machines it uses in the short run but not in the long run.
    (d) how many workers to hire in both the short run and the long run.

16. When a market is monopolistically competitive, the typical firm in the market is likely to experience a
    (a) zero profit in the short run and a positive or negative profit in the long run.
    (b) positive or negative profit in the short run and zero profit in the long run.
    (c) zero profit in the short run and in the long run.
    (d) positive profit in the short run and in the long run.

17. If a tax of $5 per unit is implemented on a good, causing the equilibrium quantity to decrease from 200 units to 100 units, and this tax results in a reduction of consumer surplus by $450 and producer surplus by $300, what is the magnitude of the deadweight loss caused by the tax?
    (a) $1000.
    (b) $800.
    (c) $500.
    (d) $250.

18. The minimum points of the average variable cost and average total cost curves occur where the
    (a) slope of the total cost is the smallest.
    (b) average variable cost and average total cost curves intersect.
    (c) marginal cost curve intersects those curves.
    (d) marginal cost curve lies below the average variable cost and average total cost curves.