Intermediate Microeconomics Exercise Class 6

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Content





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- Perfect Competition
- A perfectly competitive firm is a price taker
- MR = P
- Shape of the Demand Curve for a Perfectly Competitive Firm Horizontal (perfectly elastic)

- Profit Maximization in the Short-Run: MC = MR = P
- In the Long-Run: P = MC
 - $\pi > 0$: Entry of new firms
 - $\pi < 0$: Exit of existing firms
 - ▶ $\pi = 0$: No firms enter or leave the market \Rightarrow Perfectly competitive equilibrium
- $P = MC = MR = AC_{\min}$

- Long-Run Supply Curve of a Perfectly Competitive Market (LRS)
 - Constant Cost Industry Firms in the industry can buy as much inputs as needed without causing the input prices to go up
 - Increasing Cost Industry Increasing purchases of inputs causes input prices to go up

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- Single seller of a good with no close substitutes
- Sources of Monopoly Power
 - Economies of Scale (Natural Monopoly)
 - Economies of Scope (Cost Complementarities)
 - Barriers to Entry
- While the perfectly competitive firm is a "price taker", the monopolist is a "price maker"

- Demand Curve of a Monopolist: downward-sloping demand curve
 MR < P
- $MR = P + Q \frac{dP}{dQ}$

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- Profit Maximization by a Monopolist
 - Look for where MR = MC to determine the quantity supplied Q^*
 - ► To find the price P* that the monopolist charges, use the point on the demand curve where the quantity is equal to Q*
 - Profit-maximization under monopoly: MR = MC < P
- Rule of Thumb for Monopoly: $MR = MC \Rightarrow Q^*$

- Monopoly Power The ability to charge a price higher than MC (control of price)
- $MR = P + P\frac{1}{E^D}$
- $P = \frac{MC}{1 \frac{1}{|E^D|}}$

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- A monopolist will never choose to operate where the demand curve is inelastic
- $MR = P + P \frac{1}{E^D}$
- In a perfectly competitive market, the firm faces a flat demand curve
- Markup Pricing: $\frac{1}{1-\frac{1}{|\mathcal{E}^D|}}>1$

- Selling different units of output at different prices
 - ► First-Degree Price Discrimination (also called Perfect Price Discrimination): CS = 0 and TS = PS
 - Second-Degree Price Discrimination (also called Nonlinear Pricing): Prices depend on the units of the good bought
 - Third-Degree Price Discrimination The monopolist sells output to different people for different prices

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• Exception: the monopolist will sell output to only one of the markets

- Imperfect competition
- Differentiated products, highly substitutable but not perfect substitutes
- Free entry and exit
- MR = MC < P
- No economic profit in the long-run

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- Differentiated products by different firms: Firms are able to exert some control over the price they charge for their particular product
- The market is not a perfectly competitive one
- These firms are not monopolists

- Increasing returns to scale
 - The AC for a firm falls as more output is produced
 - Firms tend to specialize in the product lines that are most successful
 - By selling more of those products, the AC for the production falls

Monopolistic Competition Cont'd



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Given a firm's short term production function is

$$f(K,L) = 10K^{0.25}L^{0.25}F^{0.5}.$$

If we know that F (which is some kind of fixed input) is 16, find the short term supply function of the firm supposing the price is p, the rent is r_1 and the wage is r_2 .

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Touchie MacFeelie's production function is $.1J^{1/2}L^{3/4}$, where J is the number of old jokes used and L is the number of hours of cartoonists' labor. Touchie is stuck with 900 old jokes for which he paid 6 dollars each. If the wage rate for cartoonists is 5 dollars per hour, then the total cost of producing 24 comics books is

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Recall that Touchie McFeelie's production function for comic books is $.1J^{1/2}L^{3/4}$. Suppose that Touchie can vary both jokes and cartoonists' labor. If old jokes cost \$2 each and cartoonists' labor costs \$18 per hour, then the cheapest way to produce comics books requires using jokes and labor in the ratio J/L =

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Suppose that Dent Carr's long-run total cost of repairing s cars per week is $c(s) = 3s^2 + 192$. If the price he receives for repairing a car is 36, then in the long run, how many cars will he fix per week if he maximizes profits?

Suppose that Irma's production function is $f(x_1, x_2) = (\min\{x_1, 2x_2\})^{1/2}$. If the price of factor 1 is $w_1 = 6$ and the price of factor 2 is $w_2 = 4$, then her supply function is?

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A firm has the long-run cost function $C(q) = 2q^2 + 8$. In the long run, it will supply a positive amount of output, so long as the price is greater than

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Suppose that the cost of capturing a cockatoo and transporting him to the U.S. is about \$40 per bird. Cockatoos are drugged and smuggled in suitcases to the U.S. Half of the smuggled cockatoos die in transit. Each smuggled cockatoo has a 10% probability of being discovered, in which case the smuggler is fined. If the fine imposed for each smuggled cockatoo is increased to \$900, then the equilibrium price of cockatoos in the U.S. will be

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In the absence of government interference, there is a constant marginal cost of \$5 per ounce for growing marijuana and delivering it to buyers. If the probability that any shipment of marijuana is seized is .20 and the fine if a shipper is caught is \$20 per ounce, then the equilibrium price of marijuana per ounce is?

If the demand for pigeon pies is p(y) = 70 - y/2, then what level of output will maximize Peter's profits?

Thanks!

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