

$N = 36$

ECO 156, Fall 2026, Exam #1

Note: Write your name on the last page, not here.

Key

Instructions:

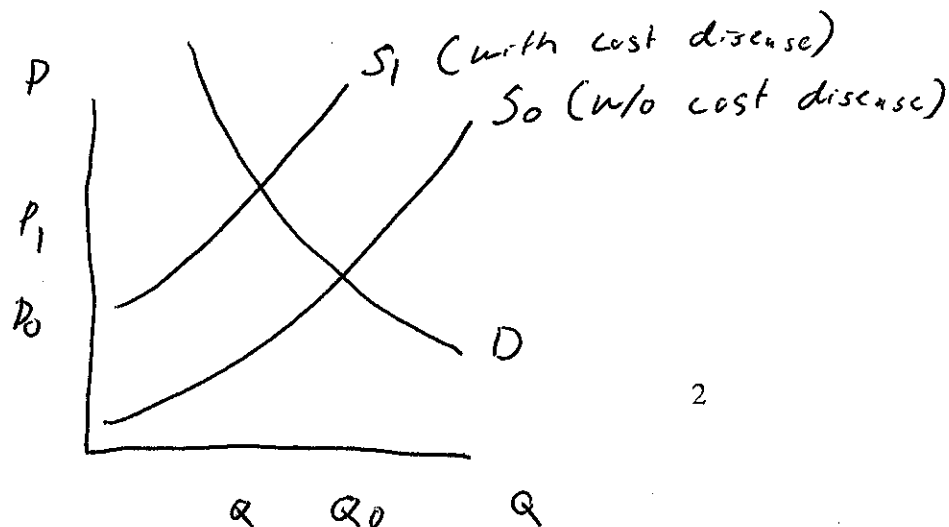
1. This exam consists of eleven questions and a bonus. You are encouraged to use the models from class when formulating your answers. Consider including graphs even if the question does not explicitly ask for one.
2. Some questions are open ended. You will be graded more on the quality of your explanation than your specific answers. On "true/false" questions, for example, answering only "true" or "false" will receive no credit, even if correct.
3. You may use a five page outline while taking this exam. You may not use any electronic devices, you do not need a calculator.
4. All questions will be graded out of ten points, including the bonus. To maximize the potential for partial credit, craft clear and concise responses. If you making assumptions, state them clearly.

1. True or False? Necessities are typically scarce but most luxury goods and services are not.

False. Almost all luxury goods and services are scarce. As are almost all necessities.

2. Healthcare is an industry that has suffered from cost disease. Using a model of supply and demand, explain and show how cost disease has affected price and quantity in the healthcare market.

Cost disease refers to markets that require a lot of skilled labor to produce. As wages for skilled labor have risen rapidly, so has the marginal cost of production. All else equal, $P \uparrow$ and $Q \downarrow$.



3. For #3-#5, consider the market for subway tickets. Demand is given by $P = 400 - 8Q$, while supply is given by $100 + 12Q$. What implicit assumptions are responsible for the slopes of these two curves?

Assuming declining marginal utility causes the demand curve to be downward sloping.

Assuming rising marginal cost causes the supply curve to be upward sloping.

4. Solve for the equilibrium price and quantity in this market.

$$400 - 8Q = 100 + 12Q$$

$$20Q = 300$$

$$Q = 15$$

$$P = 100 + 12Q = 280$$

5. Now suppose that there is an additional social benefit equal to 100. Calculate the deadweight loss if this externality is not corrected and then propose a solution to eliminate this deadweight loss.

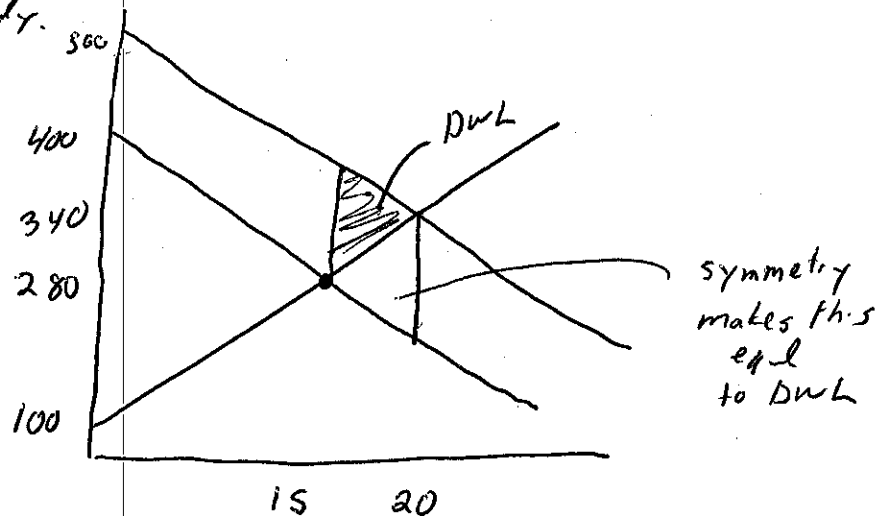
Total demand: $500 - 8Q$ Suppose demanders are given a 100 ~~subsidy~~ subsidy.

$$500 - 8Q = 100 + 12Q$$

$$Q = 20$$

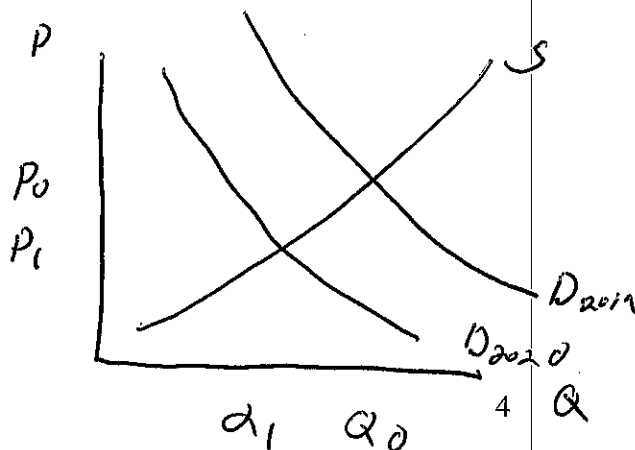
$$P = 340$$

$$DWL = \frac{1}{2} \times 5 \times 100 = 25$$



6. Using a model of supply and demand, explain why crude oil prices fell to very low levels in 2020.

Covid. with households unable or unwilling to travel, and firms using less energy, demand for crude oil fell. Both P and Q fell.

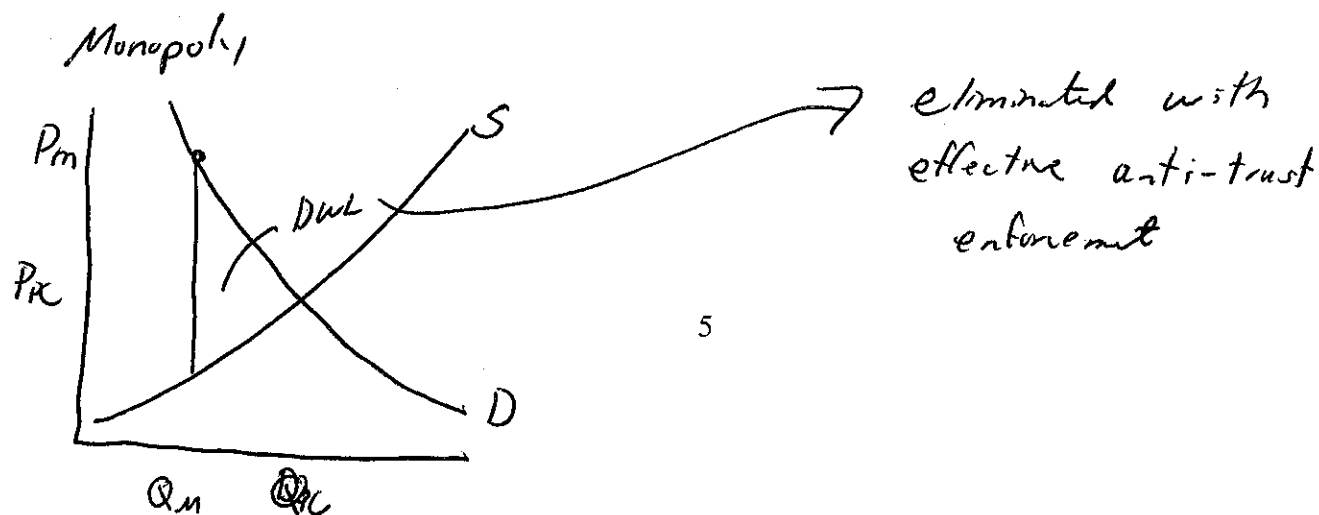


7. Can a market with just one supplier be perfectly competitive?

Yes. As long as there is free entry and exit, firms will still act as price takers.

8. How might antitrust enforcement reduce deadweight loss?

Anti-trust enforcement seeks to prevent or eliminate excess market power (either to supply or demand). One example is monopoly where the supplier creates deadweight loss by moving up along the demand curve. Anti-trust seeks to eliminate this deadweight loss by restoring a competitive market.



9. True or False? Increasing the discount rate (e.g. from 1% to 3%) raises the social cost of carbon.

False, it lowers the social cost of carbon. A higher discount rate means we care less about future environmental harm. Given that most of climate change's effects are far in the future, this reduces the $\$$ figure of the externality.

10. If unemployment is well above 4%, how should the Federal Reserve typically respond. Explain why this response may reduce unemployment.

All else equal (e.g. inflation), the Fed should lower interest rates. This reduces the payments associated with any financed good or service, this raises demand. Higher demand raises α , which requires more labor (labor demand rises).

Consider the following data on the market for spatulas.

Table 1: Market for Spatulas

Units	Marginal Utility	Marginal Cost	Revenue	Mar. Revenue
1	\$120	\$1	120	120
2	\$100	\$5	200	80
3	\$80	\$12	240	40
4	\$70	\$20	280	40
5	\$60	\$30	300	20
6	\$50	\$50	300	0
7	\$40	\$70	280	-20
8	\$20	\$90	160	-120
9	\$10	\$120	90	-70
10	\$1	\$150	10	-80

11. Assume that the producer is a monopolist. Find the profit maximizing equilibrium. Assume that partial units are not possible.

The fourth unit is the last for which $MR > MC$. the monopolist produces 4 at a price of 70.

Bonus. Now allow the monopolist from #11 to price discriminate by charging two different prices to different customers. Show how this ability could lead to even higher profits compared to #11.

One example.

Charge a price of \$100 for the first 2 units. This assumes that the firm can distinguish between high and low demand consumers, and force the former to pay the higher price. If the price for units 3 & 4 remains \$70, then

revenue = $\$100 \times 2 + \$70 \times 2 = \$340$, greater than the \$280 from #11. Given that costs are unaffected, profits rise by \$60.

Name: H.S Excellency, Count Chocula