ECON 002 - Principles of Microeconomics
Drake University, Spring 2025
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Signature: _____

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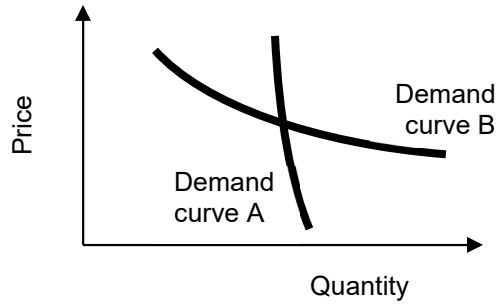
EXAMINATION 2 VERSION B
"Applications of Supply and Demand"
October 9, 2025

INSTRUCTIONS: This exam is closed-book, closed-notes. Simple calculators are permitted, but graphing calculators, calculators with alphabetical keyboards, cell phones, and wireless devices are NOT permitted. Numerical answers, if rounded, must be correct to at least 3 significant digits. Point values for each question are noted in brackets. Maximum total points are 100.

I. Multiple choice: Please circle the one best answer to each question. [1 pt each, 14 pts total]

(1) The units of measure for the price elasticity of demand for gasoline are
a. gallons per dollar.
b. dollars per gallon.
c. The elasticity is a pure number and has no units of measure.
d. percent.

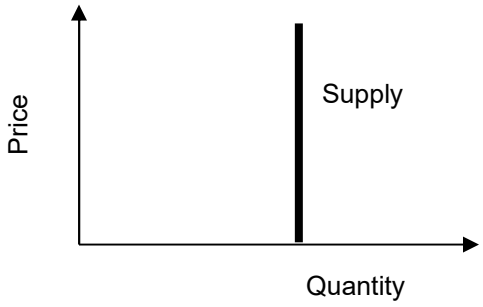
(2) Which demand curve below is *less* elastic?
a. Demand curve A.
b. Demand curve B.
c. Both have the same elasticity because they pass through the same point.
d. Cannot be determined from information given.



(3) If consumers have *less* time to adjust to a price change of a good, the demand for the good will be
a. more elastic.
b. less elastic.
c. perfectly inelastic.
d. Cannot be determined from information given.

(4) The price elasticity of demand for cantaloupe has been estimated to be about – 1.5. If the price of cantaloupe rises, then the amount of money consumers spend on cantaloupes will
a. increase.
b. decrease.
c. remain constant.
d. cannot be determined from information given.

(5) The supply curve in the graph below is
a. perfectly elastic.
b. perfectly inelastic.
c. unitary elastic.
d. Cannot be determined from information given.



The next three questions refer to the following demand and supply schedules for corn in two countries.

	Country X		Country Y	
Price	Q_D	Q_S	Q_D	Q_S
\$1	60	30	60	0
\$2	50	50	50	5
\$3	40	70	40	10
\$4	30	90	30	15
\$5	20	110	20	20
\$6	10	130	10	25
\$7	0	150	0	30

(6) In the absence of international trade, Country X's equilibrium price of corn would be
a. \$2.
b. \$3.
c. \$4.
d. \$5.
e. \$6.

(7) With international trade, the equilibrium price of corn in both countries would be
a. \$2.
b. \$3.
c. \$4.
d. \$5.
e. \$6.

(8) Who in Country X benefits from international trade in corn?
a. Buyers in Country X.
b. Sellers in Country X.
c. Both buyers and sellers in Country X.
d. Neither buyers nor sellers in Country X.

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(9) Suppose there is a change in government policy affecting the health care industry. Which of the following outcomes would be a *potential Pareto improvement*?
a. Producers gain \$20 billion while consumers lose \$10 billion.
b. Producers gain \$10 billion while consumers gain \$20 billion.
c. Producers gain \$10 billion while consumers lose \$20 billion.
d. Both (a) and (b).
e. All of the above.

(10) Arbitrageurs buy low and sell high because they *want to*
a. enforce the Law of One Price.
b. keep markets orderly.
c. ensure that all consumers face a fair price.
d. make a profit.
e. All of the above.

(11) Suppose the price of a pumpkin in Des Moines is \$7 and the cost of shipping a pumpkin between Des Moines and Omaha is \$2. Markets are *in equilibrium* if the price of pumpkins in Omaha is
a. \$2.
b. \$4.
c. \$6.
d. \$10.

(12) Arbitrage guarantees that people in Denver and Chicago pay similar prices for
a. houses.
b. gold.
c. haircuts.
d. gravel.
e. all of the above.

(13) A quota (or legal maximum quantity) on *buying* rosewood would cause its price to
a. rise.
b. fall.
c. rise or fall, depending on the shapes of the demand and supply curves.
d. remain constant.

(14) Suppose the price elasticity of demand for baby food is -0.2 and the price elasticity of supply is 5.0. If a subsidy is given for baby food,
a. producers will enjoy most of the subsidy.
b. consumers will enjoy most of the subsidy.
c. producers and consumers will each enjoy half of the subsidy.
d. Answer depends on which side receives the check from the government.

II. Problems: Please insert your answer to each question in the box provided. Use margins and graphs for scratch work. Only the answers in the boxes will be graded. Work carefully—partial credit is not normally given for questions in this section.

(1) [Calculating elasticities: 2 pts] Suppose that if the price of pizzas is $10, the typical family buys 4 pizzas per month, but if the price is $14, the typical family buys just 2 pizzas per month. Compute the price elasticity of demand for pizzas using the "arc-elasticity" formula.

(2) [Cross-price elasticity of demand: 4 pts] Suppose that when the price of muffins rises by 20 percent, the quantity of bagels purchased rises by 5 percent.

a. From the information above, are muffins and bagels *substitutes* or *complements* ?
b. Compute the cross-price elasticity of demand for bagels with respect to the price of muffins. (Full credit requires correct sign.)

(3) [Income elasticity of demand: 4 pts] Suppose that when consumers' income rises by 5 percent, the quantity of concert tickets purchased increases by 8 percent.

a. From the information above, are concert tickets an *inferior good,* a *necessary good,* or a *luxury (or superior) good* ?
b. Compute the income elasticity of demand for concert tickets. (Full credit requires correct sign.)

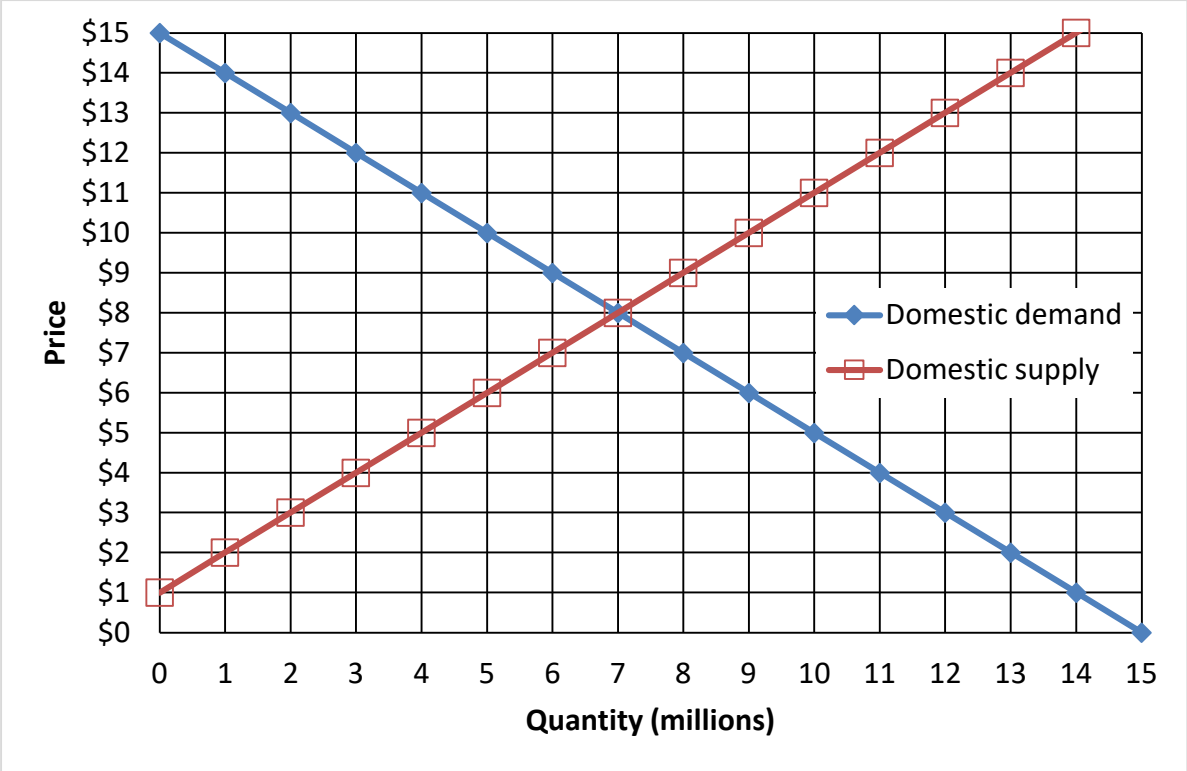
(4) [Income elasticity of demand. 8 pts] According to the 2022 Consumer Expenditure Survey, the following are budget shares for low-income and high-income households. For each good, indicate whether it is a necessary good or a luxury good (sometimes called a "superior good"). Also indicate whether the income elasticity of demand is greater or less than one.

Good	Budget share, low income	Budget share, high income	*Necessary good* or *luxury good?*	Income elasticity of demand *greater than one* or *less than one?*
a. Entertainment	4.1%	5.3%		
b. Electricity	3.2%	1.6%		

(5) [Using price elasticity of demand: 10 pts] Suppose the amusement park *raises* the price of entrance tickets by **5%**. Suppose the price elasticity of demand for tickets is **-1.4**. Assume everything else affecting demand for entrance tickets remains constant.

a. According to the information above, is demand for entrance tickets *elastic, inelastic,* or *unitary-elastic*?
b. As the price rises, will the quantity of entrance tickets demanded *increase*, *decrease*, or remain *constant*?
c. ... by approximately how much? %
d. Will the total revenue received by the amusement park *increase*, *decrease*, or remain *constant*?
e. ... by approximately how much? %

(6) [Welfare analysis of international trade: 18 pts] Domestic supply and demand for alarm clocks in a particular country are shown in the following graph.



a. At first, international trade in alarm clocks is not permitted. Find the equilibrium price without international trade. $

Then this industry is opened to international trade and the international price of alarm clocks turns out to be **$ 4.**

b. Will this country now *export* or *import* alarm clocks?

c. How many? million

d. Does consumer surplus in this country *increase or decrease* from international trade in alarm clocks?

e. By how much? $ million

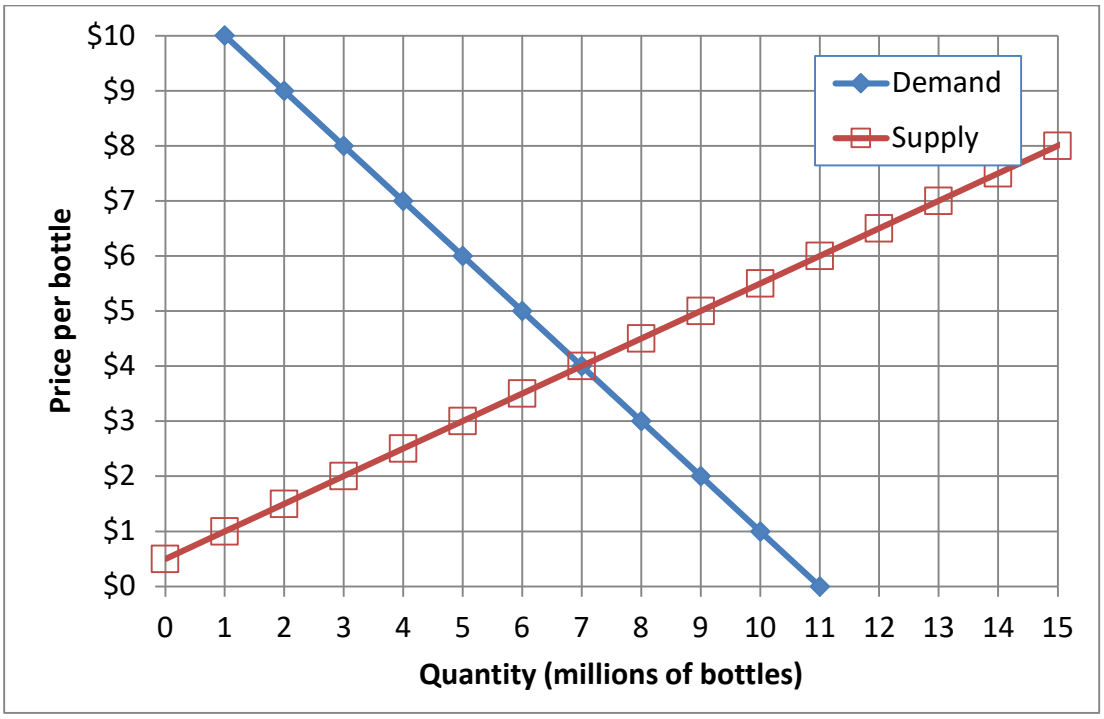
f. Does producer surplus in this country *increase or decrease* from international trade in alarm clocks?

g. By how much? $ million

h. Does total social welfare in this country *increase or decrease* from international trade in alarm clocks?

i. By how much? $ million

(7) [Welfare analysis of market controls: 18 pts] The graph below shows the market for vitamins.



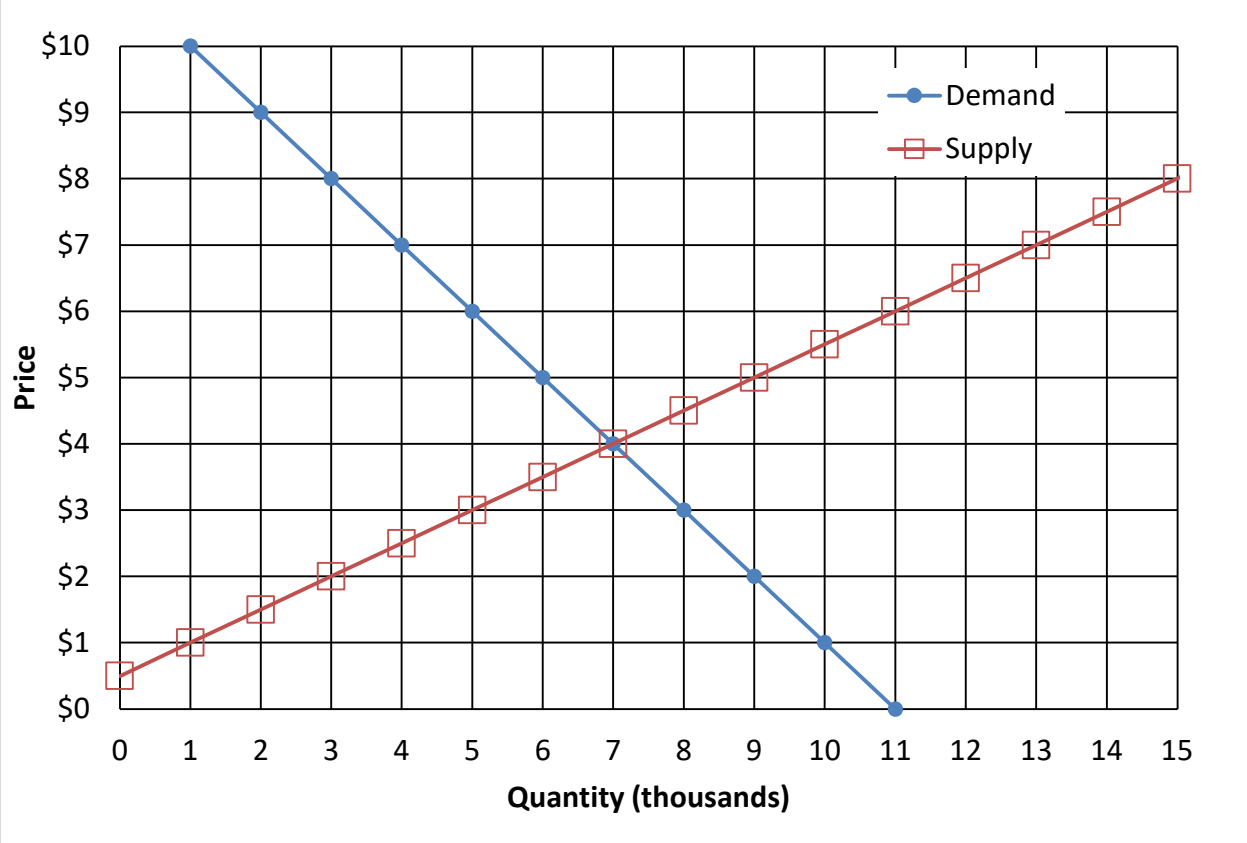
a. Find the equilibrium price without government intervention.

$

Suppose the government imposes a price floor (or legal minimum price) of **$ 6**. No vitamins may be sold for a price less than the price floor.

b. How many vitamins will actually be sold?	million
c. Will there be *excess demand, excess supply*, or *neither*?	
d. How much?	million
e. Does producer surplus *increase, decrease,* or *remain constant* because of the price floor, as compared to the market without government intervention? (Assume optimistically that vitamins are produced by those producers with the lowest cost.)	
f. By how much?	$ million
g. Does consumer surplus *increase, decrease,* or *remain constant* because of the price floor, as compared to the market without government intervention?	
h. By how much?	$ million
i. Compute the deadweight social loss caused by the price floor.	$ million

(8) [Welfare analysis of tax or subsidy: 18 pts] The graph below shows the market for pumpkins.



Suppose the government pays a **subsidy of $ 3** per pumpkin.

a. Compute the equilibrium quantity sold.	thousand
b. Compute the equilibrium total price received by sellers (including the subsidy).	$ per pumpkin
c. Compute the equilibrium net price paid by buyers (excluding the subsidy).	$ per pumpkin
d. Does producer surplus *increase, decrease,* or *remain constant* because of the subsidy?	
e. By how much?	$ thousand
f. Does consumer surplus *increase, decrease,* or *remain constant* because of the subsidy?	
g. By how much?	$ thousand
h. Compute the direct cost of the subsidy to the government—that is, the amount that the government will have to pay buyers and/or sellers.	$ thousand
i. Compute the deadweight social loss caused by the subsidy.	$ thousand

III. Critical thinking: Write a one-paragraph essay answering ***one*** question below (your choice). [4 pts]

(1) Suppose a country opens its tee-shirt industry to international trade. As a consequence, the price of tee-shirts falls from $10 to $6, and 15 million tee-shirts are imported. Does the country's overall welfare *increase* or *decrease* as a result of this change? By how much? Show your work and circle your final answer. Illustrate your work with a supply-and-demand graph of the market for tee shirts. Label both axes and all curves.

(2) Suppose the government imposed maximum prices on children's car seats. Would this action tend to increase the number of car seats sold? Explain why or why not. Illustrate your answer with a supply-and-demand graph of the market for car seats. Label both axes and all curves.

Please circle the question you are answering. Write your answer below. Full credit requires correct economic reasoning, legible writing, good grammar including complete sentences, and accurate spelling.

[end of exam]