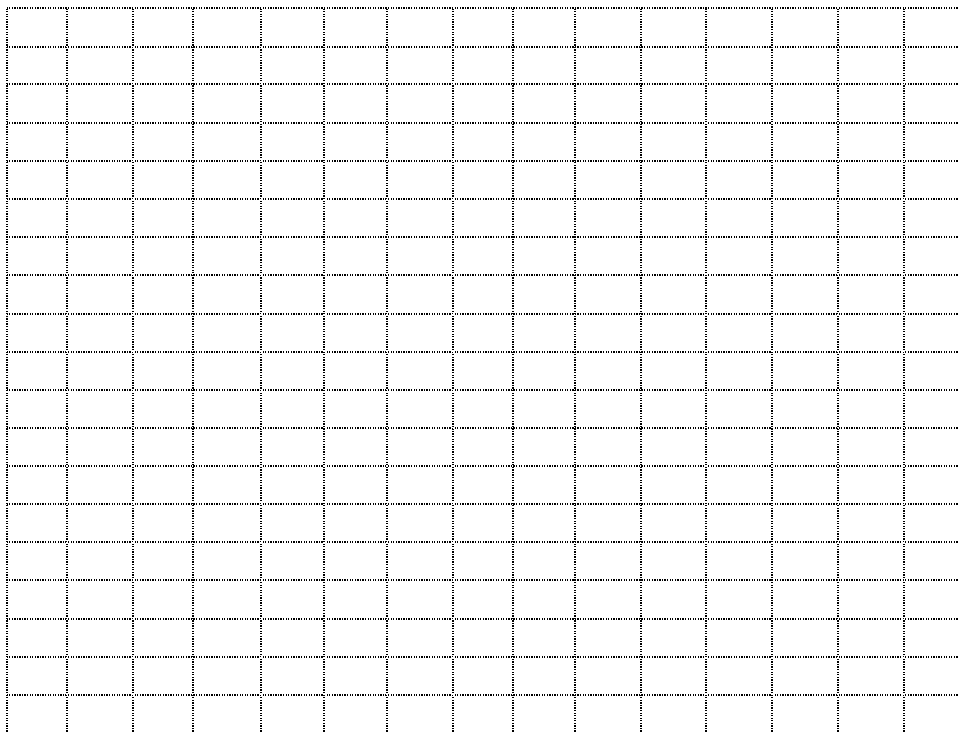


Write all answers on your exam. **Show all of your work.** The exam ends at 12:00.

1. Victor and Sondra are farmers. Each owns a 5-acre plot of land. The following table shows the amount of alfalfa and barley each farmer can produce on a given acre. Both farmers can choose whether to devote all 5 acres to producing alfalfa only, to producing barley only, or to producing both alfalfa and barley.

	Alfalfa (tons per acre)	Barley (tons per acre)
Victor	4	2
Sondra	12	3

(8pts) On the following graph, draw Victor’s Production Possibilities Frontier, labeling it PPF_V, and draw Sondra’s Production Possibilities Frontier, labeling it PPF_S. Be sure to label your axes.

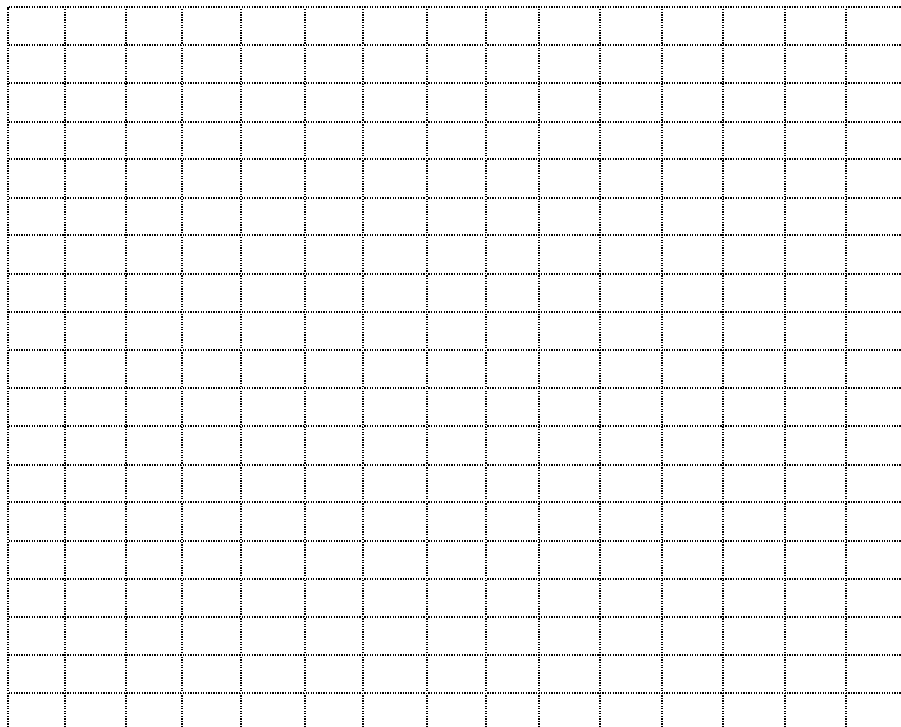


(6pts) _____ has absolute advantage in the production of alfalfa, and _____ has absolute advantage in the production of barley. Victor’s opportunity cost of producing one ton of barley is _____, whereas Sondra’s opportunity cost of producing one ton of barley is _____. _____ has a comparative advantage in the production of barley, and _____ has a comparative advantage in the production of alfalfa.

2. Suppose a market for widgets is perfectly competitive and free of government intervention. There are no externalities in the market for widgets. Sellers' costs of production and buyers' values of consumption are given in the table below, in dollars. Each buyer may buy at most one widget and each seller may sell at most one widget. No fractional units of widgets can be traded. Prices can be negotiated to the penny. Use the data in the table to answer questions (a)-(m). Read all of questions (a)-(m) before you answer any of them.

Buyer's ID Number	Buyer's Value (\$)	Seller's ID Letter	Seller's Cost (\$)
1	17	A	5
2	16	B	13
3	12	C	12
4	13	D	11
5	13	E	10
6	14	F	9
7	11	G	6
8	16	H	5
9	15	J	12
10	15	K	12
11	16	L	9
12	11	M	4

(a) (8pts) On the grid below, graph the supply and demand curves for widgets. Label your axes.



(b) (4pts) What is the equilibrium price of widgets?

(c) (2pts) What is the equilibrium quantity of widgets?

(d) (3pts) What is the total consumer surplus in equilibrium? Your answer should be a dollar amount.

(e) (3pts) What is the total producer surplus in equilibrium? Your answer should be a dollar amount.

Suppose that to help buyers of widgets, the government imposes a price ceiling. No one may now trade a widget for more than \$8.00. With the price ceiling in place, only the four trades described in the following table occur.

Seller's ID	Buyer's ID	Price	Seller's producer surplus	Buyer's consumer surplus
A	1	\$8.00		
H	3	\$8.00		
G	4	\$8.00		
M	6	\$8.00		

(f) (4pts) Fill in the table to show the actual producer surplus and consumer surplus associated with each trade.

(g) (2pts) Why are only four widgets bought when the \$8.00 price ceiling is in place?

(h) (8pts) Did the price ceiling help buyers? Thoroughly explain.

(i) (6pts) Considering that society in general is composed of buyers and sellers, how did the price ceiling affect society in general? Thoroughly explain.

For parts (j)-(m) below, suppose that instead of setting a price ceiling, the government gives sellers a subsidy of \$4 for each widget sold.

(j) (3pts) On your graph from part (a), draw the new supply curve and label it $\text{Supply}_{\text{subsidy}}$.

(k) (3pts) What are the new equilibrium price and quantity of widgets?

(l) (2pts) How much does the subsidy cost the government? Your answer should be a dollar amount.

(m) (8pts) What is the dead-weight loss from this subsidy? Your answer should be a dollar amount. Thoroughly explain how you found your answer.

3. Suppose that cigarettes are produced in a perfectly competitive market. Consider the information in the February 4, 2004 Wall St Journal article below. Use this information to answer Questions (a)- (h) below.

Quit-Smoking Proposal Calls for \$2-a-Pack Tax

Associated Press

WASHINGTON -- Four former surgeons general unveiled a plan to reduce smoking that included a \$2-a-pack tax they predicted would prompt at least five million smokers to quit.

They also called for a nationwide counseling and support line for smokers trying to quit. More than \$25 million would be dedicated for the toll-free, national "quitline".

The 10-point plan endorsed by the former surgeons general and other health advocates seeks additional tobacco research, better doctor training and an extensive media campaign explaining the dangers of smoking.

It also urges that the cigarette excise tax be raised to \$2.39 from 39 cents, of which 50% of the proceeds, or \$14 billion, would go toward paying for the various aspects of the plan.

About 50 million Americans smoke, with many of them concentrated in poor neighborhoods where treatment isn't widely available. Health officials have estimated that smoking causes about 440,000 premature deaths a year and costs the nation \$75 billion in direct health-care expenses.

"It is the equivalent of another 9/11 World Trade Center, Pentagon and Pennsylvania disaster occurring about every two days," said Julius Richmond, surgeon general under President Carter.

(a) (3pts) Do the surgeons general believe that the demand curve for cigarettes is completely inelastic? Explain how you can tell.

(b) (5pts) Draw a supply and demand curve for cigarettes. Be sure to label your axes. On your graph, label the equilibrium price P_1 and the equilibrium quantity Q_1 .

Consider the proposal by the surgeons general to increase the national tax on cigarettes by two dollars per pack. The tax would be paid by sellers.

(c) (4pts) Explain exactly what would happen to the supply curve for cigarettes if this per-unit tax increase went into effect. Be as precise as possible in your explanation.

(d) (2pts) On your graph from part (b), draw the supply curve you described in part (c). Label this new supply curve $\text{Supply}_{\text{tax}}$.

Consider the proposal by the surgeons general for an extensive media campaign explaining the dangers of smoking, and a nationwide counseling and support line for smokers trying to quit.

(e) (3pts) Explain what would happen to the demand curve for cigarettes if this education and counseling campaign were implemented.

(f) (2pts) On your graph from part (b) draw the demand curve you described in part (e). Label this new demand curve D_2 .

(g) (2pts) On your graph from part (b), find the new equilibrium if the proposals by the surgeons general were implemented. Label the new equilibrium price P_2 and the new equilibrium quantity Q_2 .

(h) (4pts) Given the estimate in the article about the amount of extra tax revenue that would be generated by an extra two dollars of excise tax, how many cigarettes do the surgeons general estimate would be sold if their proposals were implemented?

4. Data collected in the hypothetical economy of Karabekla reveal that a 5% decrease in income leads to the following changes:

A 4% increase in the quantity demanded of degdan.

A 3% decrease in the quantity demanded of sogem.

A 13% decrease in the quantity demanded of welk.

(3pts) What is the income elasticity of demand for welk?

(2pts) According to the income elasticity of demand, degdan is a _____ good and sogem is a _____ good.