# TEST 3 VERSION B
"Welfare Analysis"

INSTRUCTIONS: This exam is closed-book, closed-notes. Simple calculators are permitted, but graphing calculators or calculators with alphabetical keyboards are NOT permitted. Mobile phones or other wireless devices are NOT permitted. Points will be subtracted for illegible writing or incorrect rounding. Point values for each question are noted in brackets.

I. Problems: Insert your answer to each question below in the box provided. Feel free to use the margins 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) [Consumer surplus, producer surplus: 24 pts] The market for throw pillows is depicted in the graph below. Assume the market is in competitive equilibrium.
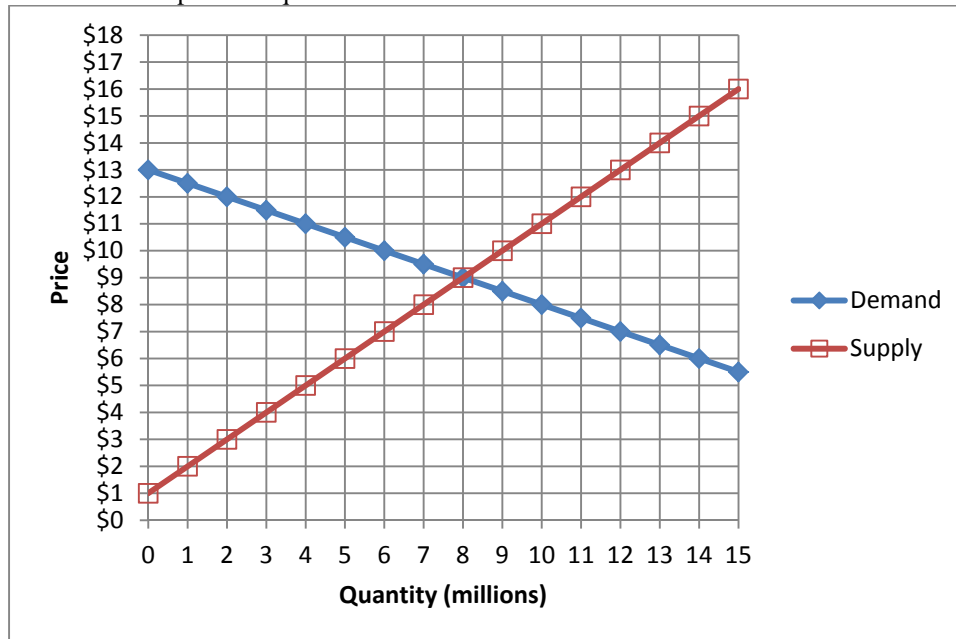
a. How much are consumers willing to pay for the 6 millionth pillow? $ _____

b. How much consumer surplus do they enjoy for the 6 millionth pillow? $ _____

c. What is the marginal cost to producers of the 2 millionth pillow? $ _____

d. How much producer surplus do they enjoy for the 2 millionth pillow? $ _____

e. Compute total consumer surplus. $ _____ million

f. Compute total producer surplus. $ _____ million

(2) [Pareto and potential Pareto improvements: 12 pts] Indicate whether each change is a Pareto improvement or a potential Pareto improvement[1] (or both or neither) by writing "YES" or "NO" in each box.

	Pareto improvement?	Potential Pareto improvement?
a. A new computer system saves the government $5 million per year in costs, and also allows taxpayers to file tax returns with less effort.		
b. Increased international trade brings $15 million in benefits to consumers, but lowers producers' profits by $10 million.		
c. A merger of two big companies causes their combined profit to increase by $50 million, but causes consumers to lose $70 million.		

(3) [Perfect competition: 20 pts] Suppose the price elasticity of demand in the market for gasoline is -0.6 .

   a. Is market demand *elastic, inelastic,* or *unit-elastic?*

   b. Suppose the price of gasoline decreased by 2%. By how much would the quantity demanded increase?

%

Suppose that Acme Service has a market share of 10% in this market. Assume the other firms in this market always keep their quantities constant when Acme changes its price or quantity.

   c. Compute Acme's perceived price elasticity of demand for its product.

   d. Is Acme's perceived demand *elastic, inelastic,* or *unit-elastic?*

   e. Suppose Acme decreased the price of gasoline by 2%. Assume other firms decreased their prices by the same amount in response, but kept their quantities constant. By how much would Acme's quantity increase?

%

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[1] Also called an "increase in economic efficiency."

(4) [Welfare analysis of price controls: 36 pts] The following graph shows the market for potatoes.
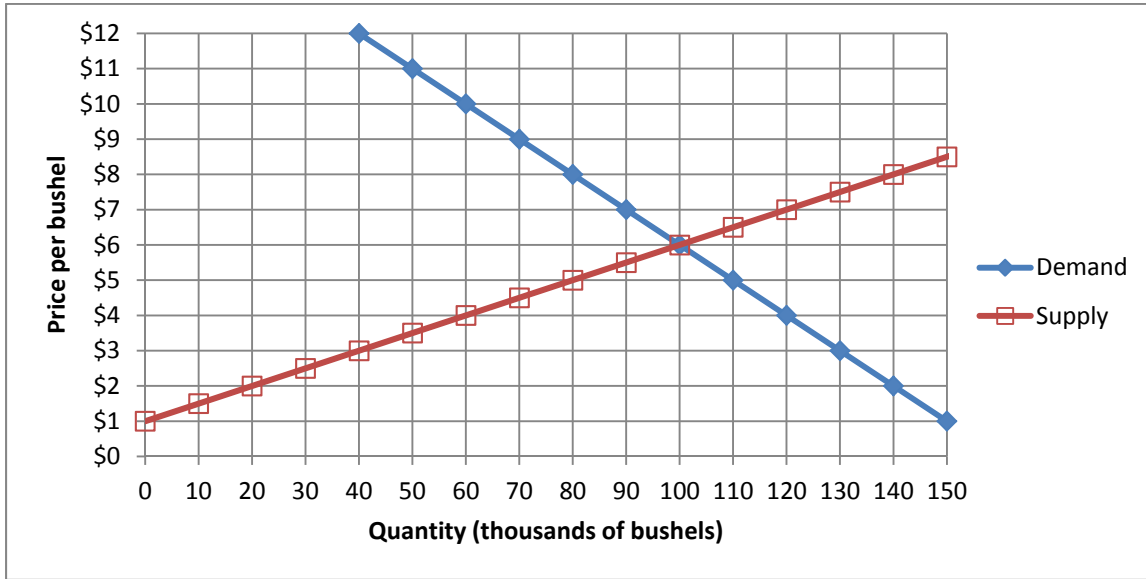
a. Find the equilibrium price without government intervention.

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Suppose the government imposes a price floor (or legal minimum price) of **$ 8** per bushel. No potatoes may be sold for a price less than the price floor.

b. How many bushels of potatoes will actually be sold?

thousand bushels

c. Will there be *excess demand, excess supply*, or *neither*?

d. How much?

thousand bushels

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 potatoes are sold by those producers whose costs are lowest.)

f. By how much?

$ thousand

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?

$ thousand
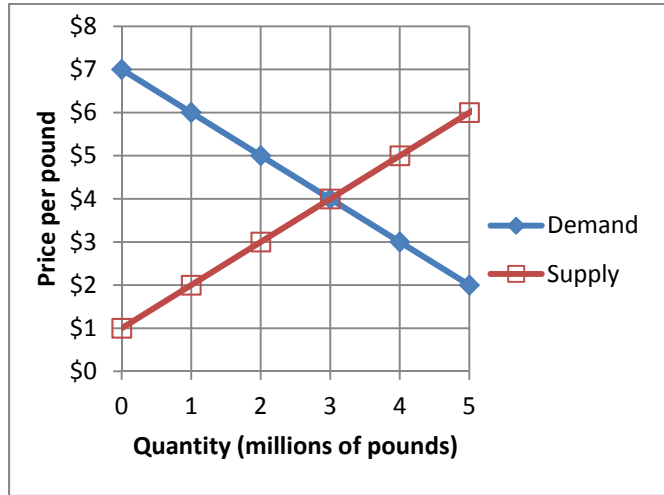
i. Compute the deadweight social loss caused by the price floor.

$ thousand

II. Critical thinking [8 pts]

The graph at right shows the market for apples. Suppose a quota on sellers is imposed by the government. Apple sellers are not permitted to sell more than 2 million pounds of apples. In lecture, I assumed that quota permits were distributed only to the lowest-cost sellers. But suppose instead that two million quota permits are distributed *randomly* among all sellers who want them.

a. What will be the loss of consumer surplus from the quota?
b. What will be the average cost of production under the quota?
c. What will be the loss of producer surplus from the quota?
d. Does anyone gain from this quota?

[end of quiz]