

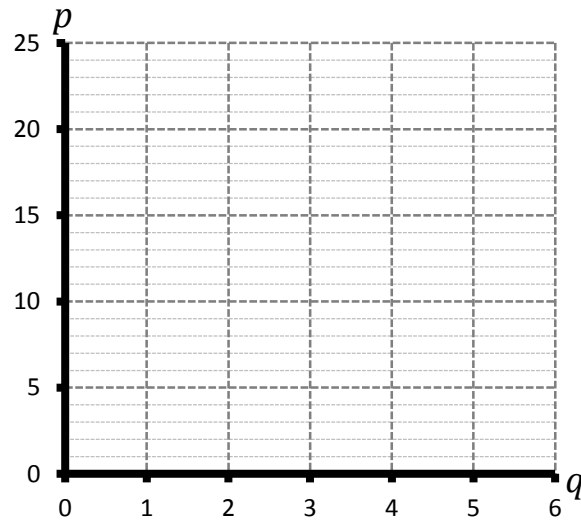
FIRST TEST. ECON 100B, SPRING 2015. NAME: _____

Fill in the blanks, and answer in the spaces provided. Show your work.

1. Discrete demand. The table below gives Ariel's total benefit from dumplings in dollar amounts (TB), given the number of dumplings she buys (q). The price of dumplings is \$5.

q	TB	MB
1	22	
2	38	
3	49	
4	56	
5	60	
6	62	

TE	CS



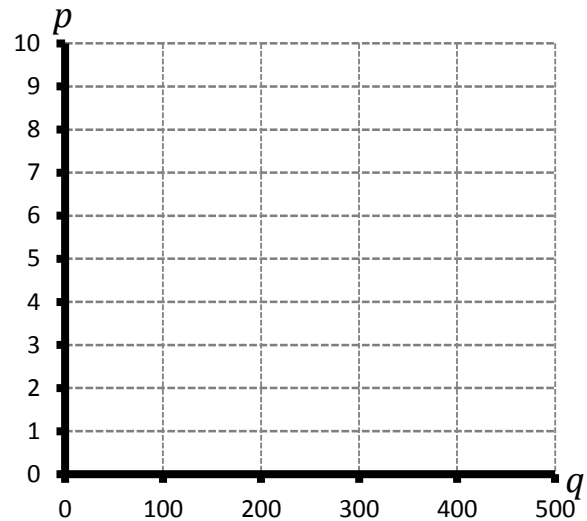
- Fill in the MB column with Ariel's marginal benefit from each last dumpling.
- Fill in the TE (total expenditure) and CS (consumer surplus) columns with Ariel's total expenditure on dumplings and her consumer surplus.
- How many dumplings should Ariel buy? _____
- On the blank graph above, draw Ariel's demand 'curve' (actually more of a staircase shape), and a line representing the price. Shade the area that represents Ariel's consumer surplus given the optimal quantity.
- Explain as clearly as possible (as if to your roommate, i.e. from the beginning to the end in an intelligible logical progression, defining any jargon you use) why the area you shaded on the graph represents consumer surplus.

2. Continuous supply. Nicole makes money by growing lentils. Her marginal cost of growing lentils is given by the function $MC = 4 + \frac{1}{100}q$, where q is the quantity of lentils she grows.

For parts (a) and (b), suppose that the price of lentils is $p = 7$.

a) At this price, Nicole's optimal quantity is $q^* = \underline{\hspace{2cm}}$, and her resulting producer surplus is $PS = \underline{\hspace{2cm}}$.

b) On the blank graph to the right, draw Nicole's supply curve, and a line representing the price. Shade in the area that represents Nicole's producer surplus given her optimal quantity.



c) Now let's broaden the analysis to accommodate a wide range of possible prices, by finding Nicole's supply function: This is $q_s = \underline{\hspace{2cm}}p - \underline{\hspace{2cm}}$

d) Explain as clearly as possible, as if to your roommate, how you found the optimal quantity in part (a). How exactly do you know that this quantity maximizes Nicole's profit? Again, be logical and complete, don't rely on using jargon, and define all terms you use in plain English.

3. Excise tax. Demand and supply in the market for fancy pasta (which is perfectly competitive, etc.) are determined by the marginal benefit function $MB = 14 - \frac{1}{25}q$ and the marginal cost function $MC = 4 + \frac{1}{100}q$, where q is the quantity of fancy pasta.

For parts (a) and (b), suppose that there is no tax.

a) In the market equilibrium, the price is $p^* =$ _____, and the quantity is $q^* =$ _____.

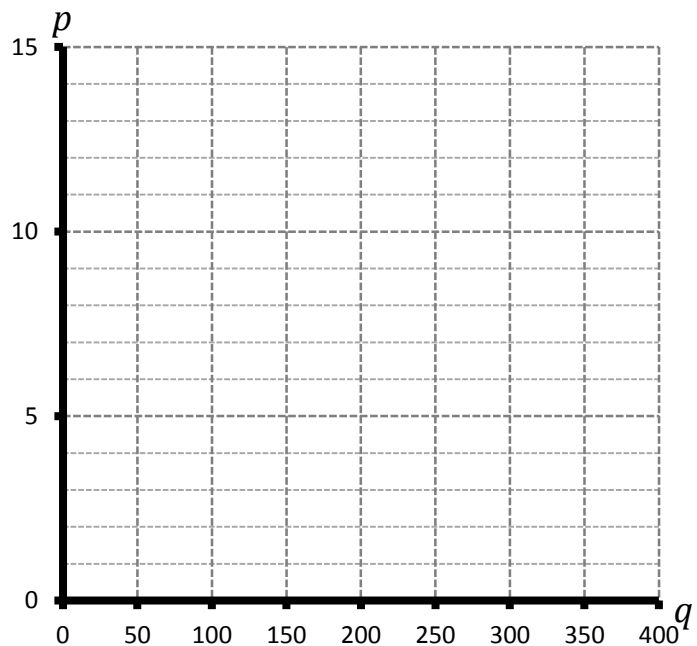
b) Consumer surplus is $CS =$ _____, producer surplus is $PS =$ _____, and total economic surplus is $TES =$ _____.

For parts (c) through (f), suppose that the government imposes a tax of \$5 per unit on fancy pasta.

c) In the market equilibrium, the price is $p^* =$ _____, and the quantity is $q^* =$ _____.

d) Consumer surplus is $CS =$ _____,
producer surplus is $PS =$ _____,
government revenue is $GR =$ _____,
total economic surplus is $TES =$ _____,
and deadweight loss is $DWL =$ _____.

e) On the blank graph to the right, draw the demand curve, supply curve, and the supply curve with the tax. Use different colors or patterns to shade in consumer surplus, producer surplus, government revenue, and deadweight loss.



f) Which is greater, the revenue gained by the government as a result of the tax, or the surplus lost by consumers and producers? Explain as clearly as possible (as if to your roommate, defining all terms) why this is true in this case (and most others).

4. Price floor. Demand and supply in the market for red curry (which is perfectly competitive, etc.) are determined by the marginal benefit function $MB = 16 - \frac{1}{10}q$ and the marginal cost function $MC = 4 + \frac{1}{10}q$, where q is the quantity of rental housing.

For parts (a) and (b), suppose that there is no price control.

a) In the market equilibrium, the price is $p^* =$ _____, and the quantity is $q^* =$ _____.

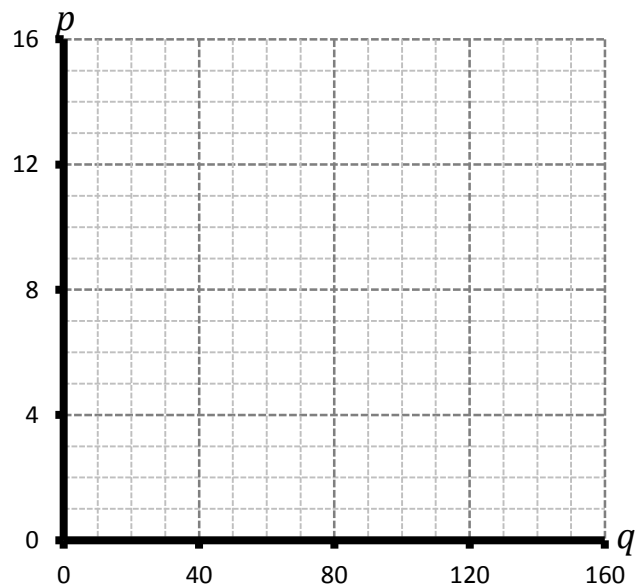
b) Consumer surplus is $CS =$ _____, producer surplus is $PS =$ _____, and total economic surplus is $TES =$ _____.

For parts (c) through (f), suppose that there is a price floor of \$12 per unit.

c) In the market equilibrium, the price is $p^* =$ _____, and the quantity is $q^* =$ _____.

d) Consumer surplus is $CS =$ _____, producer surplus is $PS =$ _____, total economic surplus is $TES =$ _____, and deadweight loss is $DWL =$ _____.

e) On the blank graph to the right, draw the demand curve, supply curve, and the price floor. Use different colors or patterns to shade in consumer surplus, producer surplus, and deadweight loss.



f) Who gains from this price floor, and who loses? Which is greater in dollar terms, the gain or the loss? Explain very clearly (as if to your roommate, defining all terms) why this is true in this case (and most others).