1. ____/20	4.____/30
2. ____/20	5.____/10
3. ____/10	6.____/10
Total: ____/100	

Name: _____

Unit II: Supply, Demand, and Consumer Choice
Problem Set #2

1. EXPLAIN an experience or example that shows the "real world" application of each of the following. Define the terms in your own words and use examples that clearly demonstrate your understanding of each concept.
   a. The Law of Demand and the Law of Supply (____/5)
   b. The Law of Diminishing Marginal Utility (____/5)
   c. Normal Goods and Inferior Goods (____/5)
   d. Consumer's Surplus and Producer's Surplus (____/5)

2. Supply and Demand Worksheets
   a. Complete the study guide entitled "Demand and Supply Study Guide" (____/5)
   b. Complete the worksheet entitled "Demand and Supply Practice" (____/15)

3. Government Intervention:
   a. EXPLAIN the results of the three following government policies. Be sure to draw each on a separate graph: price floor, price ceiling, production subsidy, and production quota. (____/5)
   b. The government often uses excise taxes, called "sin taxes," to manipulate consumption of cigarettes. Draw and label the shift from a tax. Identify the new price consumers pay, the price producers receive, the amount of tax revenue consumers pay, and the amount of tax revenue producers pay. Lastly, EXPLAIN why it is unlikely that this tax will significantly reduce cigarette consumption. (____/5)

4. Practice FRQs: Applying S&D Analysis
   a. Practice FRQ #1 and #2. THIS WILL BE GRADED IN CLASS (____/20)
   b. Assume the following: The demand for all computers is price elastic. Laptop and desktop computers are substitutes. Laptops and DVD burners are compliments. Using three separate S&D graphs (laptops, desktops, and DVD burners) to show the impact of a change in technology that improves only the production of laptop computers on the following: (____/10)
      i. Price of laptop computers
      ii. Output of laptop computers
      iii. Total revenue of laptop computer producers
      iv. Price of desktop computers
      v. Output of desktop computers
      vi. Price of DVD burners
      vii. Output of DVD burners

5. Elasticity
   a. Give three reasons why the demand for some goods are elastic and others are inelastic. In your response, define elasticity and inelasticity and give examples of each. (____/5)
   b. EXPLAIN how the total revenue test can be used to determine if a demand curve is elastic or inelastic. Use two graphs with numerical examples in your response. (____/5)

6. Utility Maximization
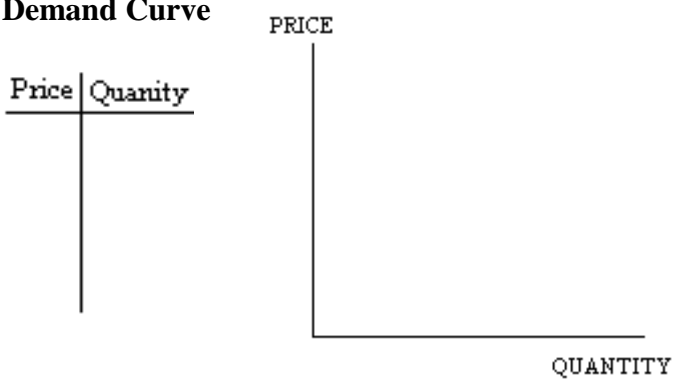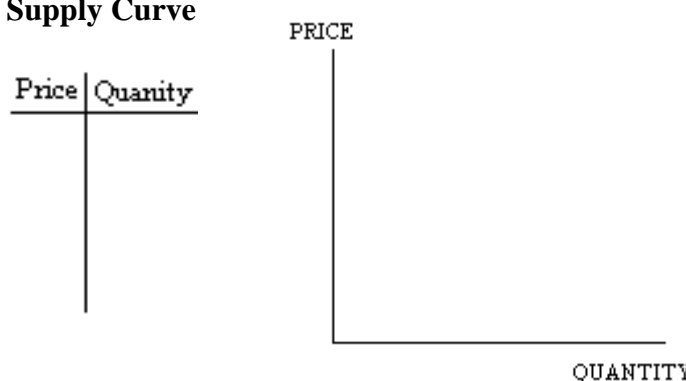   You just won a $100 shopping spree at a store that sells only DVDs and CDs. You are trying to determine what combination of these two goods would maximize your utility. The price of CDs is $10 and DVDs are $20. Below is the total utility you receive from consuming these goods.

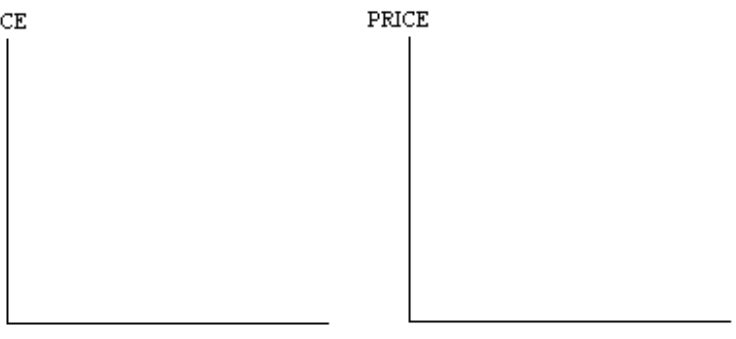| CDs	Total Utility		DVDs	Total Utility
1	60		1	160
2	110		2	300
3	150		3	420
4	180		4	520
5	200		5	600
6	210		6	660

   a. Calculate the marginal utility and marginal utility per dollar for each unit of each good. (_____/4)
   b. If you only had $100, EXPLAIN how you determine the utility maximizing combination of CDs and DVDs? (_____/3)
   c. If your reward increased and your income constraint became $130, EXPLAIN how you determine the utility maximizing combination of CDs and DVDs? (_____/3)

Demand and Supply Study Guide

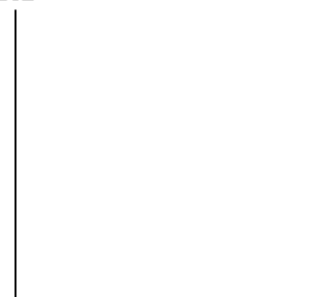| Demand	Supply
Definition of Demand:	**Definition of Supply:**
The Law of Demand:	**The Law of Supply:**
Why is demand downward sloping?	**Why is supply upward sloping?**
Demand Curve Price | Quanity PRICE QUANTITY	**Supply Curve** Price | Quanity PRICE QUANTITY
What changes quantity demanded?	**What changes quantity supplied?**
What changes demand? (5 Shifters of Demand)	**What changes supply? (6 Shifters of Supply)**
Explain the difference between a "change in demand" and change in "quantity demand"	

Supply and Demand Together

PRICE

QUANTITY

PRICE

QUANTITY

Equilibrium- Qd____Qs

Shortage- Qd____Qs

Surplus- Qd____Qs

Definition of Consumer Surplus (CS)

Definition of Producer Surplus (PS)

Definition of Dead Weight Loss (DWL)

CS and PS

PRICE

QUANTITY

Economic Analysis-What happens to P and Q?

Cereal Market
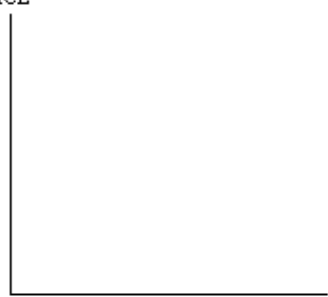
PRICE

QUANTITY

1. **Draw Equilibrium**
2. **Analyze Change**
   o Supply or Demand
   o Shifter-
   o Increase or Decrease
3. **New Equilibrium**
   o What Happens to:
     Price_____
     Quantity_____

Change: Price of milk increases significantly

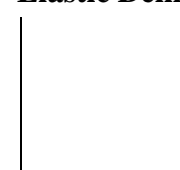### Double Shifts in Demand and Supply

Rule:

PRICE

QUANTITY

If demand decreases AND supply increases, what happens to

P ـــــ Q ـــــ

Elasticity of Demand

Elasticity of Supply

Inelastic Demand	Elastic Demand

Elasticity of Demand Coefficients

- Perfectly Inelastic
- Relatively Inelastic
- Unit Elastic
- Relatively Elastic
- Perfectly Elastic

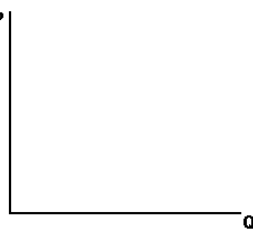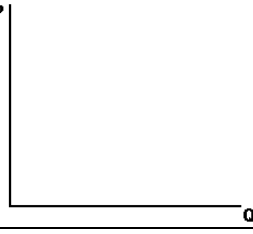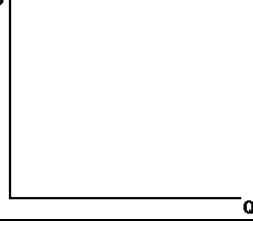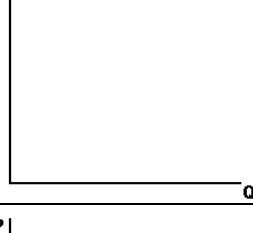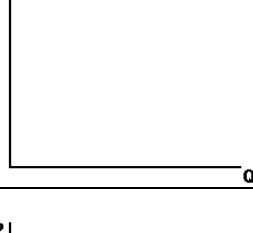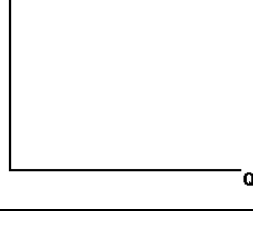### Total Revenue Test
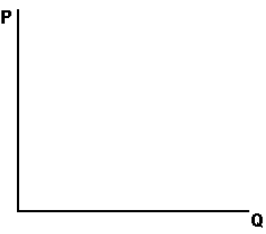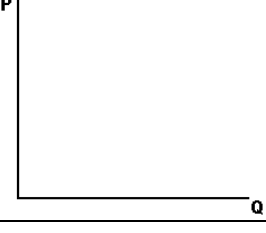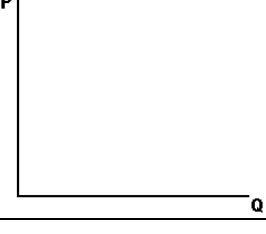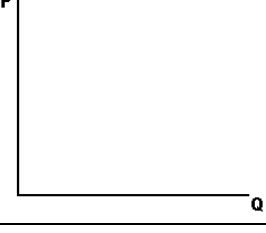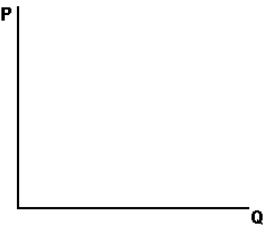
Inelastic Demand
  When price increases, TR _____
  When price decreases, TR _____

Elastic Demand
  When price increases, TR _____
  When price decreases, TR _____

Demand and Supply Practice

Use Economic Analysis to determine what happens to the price and quantity of computer games in each scenario.

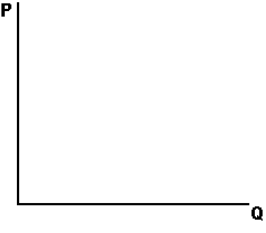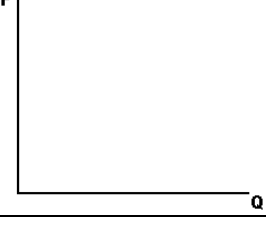| #	Change	Graph	Economic Analysis
1	It becomes known that an electronics store is going to have a sale on their computer games 3 months from now.	P Q	1. Draw and Label Equilibrium: 2. The Change: Supply or Demand Increase or Decrease Shifter 3. After: Price _____ Quantity_____
2	The workers who produce the computer games go on strike for over two months	P Q	1. Draw and Label Equilibrium: 2. The Change: Supply or Demand Increase or Decrease Shifter 3. After: Price _____ Quantity_____
3	When the average price of movie tickets rises, it has an effect on the purchase of computer games. (Analyze computer games.)	P Q	1. Draw and Label Equilibrium: 2. The Change: Supply or Demand Increase or Decrease Shifter 3. After: Price _____ Quantity_____
4.	The workers who produce the computer games negotiate a $20 per hour wage increase.	P Q	1. Draw and Label Equilibrium: 2. The Change: Supply or Demand Increase or Decrease Shifter 3. After: Price _____ Quantity_____
5.	The price of business software, a product also supplied by computer game software producers, rises. (Analyze computer games.)	P Q	1. Draw and Label Equilibrium: 2. The Change: Supply or Demand Increase or Decrease Shifter 3. After: Price _____ Quantity_____
6.	A reputable private research institute announces that children who play computer games also improve their grades in school.	P Q	1. Draw and Label Equilibrium: 2. The Change: Supply or Demand Increase or Decrease Shifter 3. After: Price _____ Quantity_____
7.	Because of the use of mass production techniques, workers in the computer game industry become more productive	P Q	1. Draw and Label Equilibrium: 2. The Change: Supply or Demand Increase or Decrease Shifter 3. After: Price _____ Quantity_____

8.	The price of home computers decreases significantly. (Analyze computer games.)	P⌐_____ Q	1. Draw and Label Equilibrium:
			2. The Change:
			   Supply or Demand
			   Increase or Decrease
			   Shifter
			3. After: Price _____ Quantity_____

9.	The Federal government imposes a $5 per game tax on the manufacturers of the games.	P⌐_____ Q	1. Draw and Label Equilibrium:
			2. The Change:
			   Supply or Demand
			   Increase or Decrease
			   Shifter
			3. After: Price _____ Quantity_____

10	The manufacturer of the computer games raises the price on the games.	P⌐_____ Q	1. Draw and Label Equilibrium:
			2. The Change:
			   Supply or Demand
			   Increase or Decrease
			   Shifter
			3. After: Price _____ Quantity_____

11	In order to promote American production, Congress provides a subsidy to game producers. (Analyze only American firms)	P⌐_____ Q	1. Draw and Label Equilibrium:
			2. The Change:
			   Supply or Demand
			   Increase or Decrease
			   Shifter
			3. After: Price _____ Quantity_____

12	A large firm enters the game business with a new line of games. (Analyze the whole game industry)	P⌐_____ Q	1. Draw and Label Equilibrium:
			2. The Change:
			   Supply or Demand
			   Increase or Decrease
			   Shifter
			3. After: Price _____ Quantity_____

13	In order make computer games available to low-income families, Congress sets a price ceiling for the games.	P⌐_____ Q	1. Draw and Label Equilibrium:
			2. The Change:
			   Supply or Demand
			   Increase or Decrease
			   Shifter
			3. After: Price _____ Quantity_____

14	The popularity of the computer games increases in the world markets. At the same time new technology lower production costs. **(Double Shift)**	P⌐_____ Q	1. Draw and Label Equilibrium:
			2. The Change:
			   Demand- Up or Down Shifter-
			   Supply- Up or Down Shifter-
			3. After: Price _____ Quantity_____

Adapted from The Study Guide by Walstad and Bingham p. 35, exercise 7 and Sally Dickson.

2. The graph above shows the market for a good that is subject to a per-unit tax. The letters in the graph represent the enclosed areas.

   (a) Using the labeling on the graph, identify each of the following.

      (i) The equilibrium price and quantity before the tax

      (ii) The area representing the consumer surplus before the tax

      (iii) The area representing the producer surplus before the tax

   (b) Assume that the tax is now imposed. Based on the graph, does the price paid by the buyers rise by the full amount of the tax? Explain.

   (c) Using the labeling on the graph, identify each of the following after the imposition of the tax.

      (i) The net price received by the sellers

      (ii) The amount of tax revenue

      (iii) The area representing the consumer surplus

      (iv) The area representing the deadweight loss

2005 AP® MICROECONOMICS FREE-RESPONSE QUESTIONS (Form B)

3. Assume that bread and butter are complementary goods. The government begins to subsidize the production of wheat, which is an input in the production of bread.

   (a) For each of the following markets, draw correctly labeled supply and demand graphs and show the effect of the subsidy on the equilibrium price and quantity in the short run.

      (i) The wheat market

      (ii) The bread market

      (iii) The butter market

   (b) If the demand for bread is price elastic, how will total revenues for the bread producers change as a result of the government subsidy?

practice

Multiple Choice
Identify the choice that best completes the statement or answers the question.

Figure 4.4 Ashley's Demand Curve
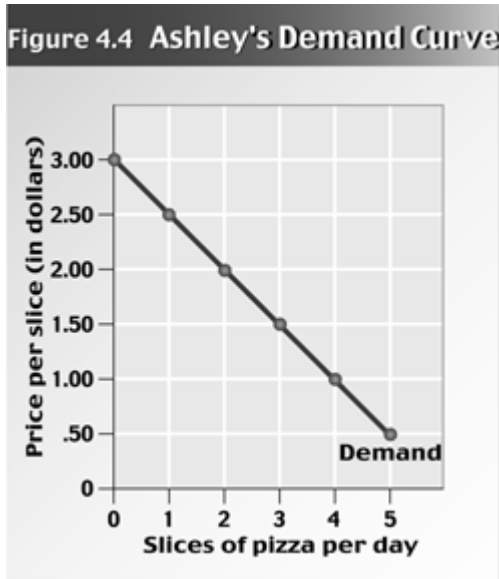
_____ 1. According to Figure 4.4, how many slices of pizza will Ashley buy if the price is $1.00 per slice?
a. one
b. two
c. three
d. four

_____ 2. According to Figure 4.4, at what price will Ashley's quantity demanded of pizza be three slices?
a. $ .50
b. $1.00
c. $1.50
d. $3.00

_____ 3. The price of a slice of pizza has just increased by $1 from an earlier, low price. Based on Ashley's demand curve in Figure 4.4, which of the following statements is true?
a. Ashley will buy two fewer slices of pizza.
b. Ashley will buy four slices of pizza.
c. Ashley's quantity demanded is unchanged.
d. Ashley will not buy any pizza.

_____ 4. According to Figure 4.4, what is Ashley's elasticity of demand as the price of a slice of pizza decreases from $2.00 to $1.00?
a. 5.0
b. 1.0
c. 2.0
d. 4.0

_____ 5. A new restaurant has opened. Ashley's demand for pizza has decreased and her demand curve has shifted. Based on Figure 4.4, which combination of price and quantity demanded would you expect to find on her new demand curve?
a. $1.50, three slices
b. $2.00, three slices
c. $2.00, one slice
d. $1.00, five slices

_____ 6. A slice of pizza costs $4.00. Based on Ashley's demand curve in Figure 4.4, what is her quantity demanded of pizza at this price?
a. one
b. zero
c. five

d.   There is not enough information to answer the question.

Figure 5.4 Supply Curves

7. If the market price for pizza is $2.00 a slice, how many slices will be supplied by all producers in the market, according to Figure 5.4?
    a.   200   c.   250
    b.   2,000   d.   2,500

8. According to Figure 5.4, how many slices of pizza will one pizzeria be willing to supply at a market price of $1.50 a slice?
    a.   100   c.   300
    b.   200   d.   1,000

9. According to Figure 5.4, what term describes elasticity of supply in this market as the price increases from $1.00 to $2.00 a slice?
    a.   Elastic   c.   Unitary elastic
    b.   Inelastic   d.   Extremely elastic

10. A shortage of tomato sauce and mozzarella cheese causes the market supply curve for pizza slices to shift. Based on Figure 5.4 Supply Curves, which of the following combinations of quantity supplied and price would you expect to find on the new curve?
    a.   2,500 slices at $2.50 each   c.   3,500 slices at $2.50 each
    b.   1,500 slices at $1.00 each   d.   3,000 slices at $1.50 each

11. The market price of a slice of pizza has risen from $1.50 to $2.00. Based on Figure 5.4, the average pizzeria will respond by
    a.   making 50 fewer slices a day.   c.   making 500 fewer slices a day.
    b.   making 50 more slices a day.   d.   making 500 more slices a day.

12. According to Figure 5.4, what is the elasticity of supply as the price decreases from $3.00 to $1.50 a slice?
    a.   0   c.   .86
    b.   .43   d.   1.71

Essay

Critical Thinking

13. Give an example of a good or service that may change in elasticity over time rather than immediately, and discuss why this happens.