

Q1. American Mining Company is interested in obtaining quick estimates of the supply and demand curves for coal. The firm's research department informs you that the elasticity of supply is approximately 1.7, the elasticity of demand is approximately -0.85, and the current price and quantity are \$41 and 1,206, respectively. Price is measured in dollars per ton, quantity the number of tons per week.

Estimate linear supply and demand curves at the current price and quantity.

A.

$$QD = 844 - 25 P$$

$$QS = -2231 + 50 P$$

B.

$$QD = 2231 - 50 P$$

$$QS = -844 + 25 P$$

C.

$$QD = 2231 - 25 P$$

$$QS = -844 + 50 P$$

D.

$$QD = -2231 - 25 P$$

$$QS = 844 + 50 P$$

E.

$$QD = -2231 + 25 P$$

$$QS = 844 - 50 P$$

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Q2. American Mining Company is interested in obtaining quick estimates of the supply and demand curves for coal. The firm's research department informs you that the elasticity of supply is approximately 1.7, the elasticity of demand is approximately -0.85, and the current price and quantity are \$41 and 1,206, respectively. Price is measured in dollars per ton, quantity the number of tons per week.

What impact would a 10% increase in demand have on the equilibrium price and quantity?

A.

$$P' = 42.56$$

$$QD' = 1283.7$$

B.

$$P' = 42$$

$$QD' = 1280$$

C.

$$P' = 44.65$$

$$QD' = 1184$$

D.

$$P' = 43$$

$$QD' = 1293$$

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Q3. American Mining Company is interested in obtaining quick estimates of the supply and demand curves for coal. The firm's research department informs you that the elasticity of supply is approximately 1.7, the elasticity of demand is approximately -0.85, and the current price and quantity are \$41 and 1,206, respectively. Price is measured in dollars per ton, quantity the number of tons per week. If the government refused to let American change the price when demand increases by 10%, what shortage is created?

A. 94.6 tons per week

B. 110.4 tons per week

**C. 120.6 tons per week**

D. 130.6 tons per week

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Q4. Sally consumes two goods, X and Y. Her utility function is given by the expression  $U = (3 \cdot XY^2)$ . The current market price for X is 10 dollars, while the market price for Y is 5 dollars. Sally's current income is \$500.

Determine the X,Y combination which maximizes Sally's utility, given her budget constraint.

A.

$$X = 12.5$$

$$Y = 50$$

**B.**

$$**X = 16.67**$$

$$**Y = 66.67**$$

C.

$$X = 30.33$$

$$Y = 60.66$$

D.

$$X = 66.67$$

$$Y = 16.67$$

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Q5. Sally consumes two goods, X and Y. Her utility function is given by the expression  $U = (3 \cdot XY^2)$ . The current market price for X is 10 dollars, while the market price for Y is 5 dollars. Sally's current income is \$500.

Calculate the impact on Sally's optimum market basket of an increase in the price of X to \$15. What would happen to her utility as a result of the price increase?

A.

$X = 66.67, Y = 11.11$

Before price change:  $U = 222,289$

After price change:  $U' = 148,148$

B.

$X = 11.11, Y = 44.44$

Utility remains same as before

C.

$X = 11.11, Y = 66.67$

Before price change:  $U = 148,148$

After price change:  $U' = 222,289$

D.

**$X = 11.11, Y = 66.67$**

**Before price change:  $U = 222,289$**

**After price change:  $U' = 148,148$**

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Q6. Bill currently uses his entire budget to purchase 5 cans of Pepsi and 3 hamburgers per week. The price of Pepsi is 1 dollar per can, the price of a hamburger is 2 dollars, Bill's marginal utility from Pepsi is 4, and his marginal utility from hamburgers is 6. Bill could increase his utility by:

**A. increasing Pepsi consumption and reducing hamburger consumption**

B. increasing hamburger consumption and reducing Pepsi consumption

C. we do not have enough information to answer this question

D. maintaining his current consumption choices

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Q7. Bill uses his entire budget to purchase Pepsi and hamburgers, and he currently purchases no Pepsi and 6 hamburgers per week. The price of Pepsi is 1 dollar per can, the price of a hamburger is 2 dollars, Bill's marginal utility from Pepsi is 2, and his marginal utility from hamburgers is 6. Is Bill's current consumption decision optimal?

A. No, he should purchase more of both goods

B. No, he should increase Pepsi consumption and reduce hamburger consumption

C. We do not have enough information to answer this question.

**D. Yes, the corner solution is best because his MRS is less than the price ratio**

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Q8. May enjoys spending her free time with her friends at the mall and solving problems from her microeconomics text. She has 16 hours per week of free time.

If  $MU_F = \frac{3}{4}(\frac{P}{F})^{\frac{1}{4}}$  and  $MU_P = \frac{1}{4}(\frac{F}{P})^{\frac{3}{4}}$  where F is her time spent with friends at the mall and P is her time spent working problems, how much time should May spend at each activity?

- A. P = 10, F = 6
  - B. P = 12, F = 4
  - C. P = 4, F = 12**
  - D. P = 6, F = 10
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Q9. Suppose the table below lists the price and consumption levels of food and clothing during 1990 and 2000. Calculate the Laspeyres and Paasche index using 1990 as the base year.

Year	Prices		Consumption	
	Food	Clothing	Food	Clothing
1990	5.00	3.00	100	75
2000	6.25	3.35	110	87

A.  
LI = 2.207  
PI = 2.209

B.  
LI = 1.207  
PI = 1.209

**C.  
LI = 1.209  
PI = 1.207**

D.  
LI = 1.209  
PI = 1.209

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Q10. Natasha derives utility from attending rock concerts ( $r$ ) and from drinking colas ( $c$ ) as follows:

$$U(c,r) = c^{.9} \times r^{.1}$$

The marginal utility of cola ( $MU_c$ ) and the marginal utility of rock concerts ( $MU_r$ ) are given as follows:

$$MU_c = 0.9 \times \left(\frac{r}{c}\right)^{.1}$$

$$MU_r = 0.1 \times \left(\frac{c}{r}\right)^{.9}$$

a. If the price of cola ( $P_c$ ) is 1 dollar and the price of concert tickets ( $P_r$ ) is 30 dollars and Natasha's income is 300 dollars, how many colas and tickets should Natasha buy to maximize utility?

b. Suppose that the promoters of rock concerts require each fan to buy 4 tickets or none at all. Under this constraint and given the prices and income in (a), how many colas and tickets should Natasha buy to maximize utility?

c. Is Natasha better off under the conditions in (a) or (b)?

**[question later dropped as invalid]**

**A.**

**a.  $c = 270$  and  $r = 1$**

**b.  $c = 180$  and  $r = 4$**

**c. Natasha prefers option "b"**

**B.**

**a.  $c = 180$  and  $r = 4$**

**b.  $c = 300$  and  $r = 0$**

**c. Natasha prefers option "a"**

**C.**

**a.  $c = 270$  and  $r = 1$**

**b.  $c = 300$  and  $r = 0$**

**c. Natasha prefers option "a"**

