1. Consider the following supply curve $Q^S = 3P - 6$, and inverse demand curve $P = 17 - \frac{1}{2}Q^D$. The equilibrium price and quantity are given by

   a. $P = 10$, $Q = 24$
   b. $P = 13$, $Q = 8$
   c. $P = 8$, $Q = 18$
   d. $P = 9$, $Q = 21$
   e. $P = 11$, $Q = 16$

2. What is the elasticity of demand (mid-point formula) for a demand curve given by $Q^D = 400 - 8P$ as price goes from $20 to $25?
   a. -11/9
   b. -9/11
   c. -9/5
   d. -1.1
   e. -78.22

3. Along any indifference curve we know that utility remains constant as we change levels of q_1 and q_2. We can write this statement as an equation as $\Delta q_1 MU_{q_1} + \Delta q_2 MU_{q_2} = 0$. This implies that

   a. $\dfrac{-p_2}{p_1} = \dfrac{\Delta q_1}{\Delta q_2}$

   b. $\dfrac{\Delta q_1}{\Delta q_2} = -\dfrac{MU_{q_2}}{MU_{q_1}}$

   c. The marginal rate of substitution of q_1 for q_2 is equal to $-\dfrac{MU_{q_2}}{MU_{q_1}}$

   d. The indifference curve is tangent to the budget line
   e. Both b and c are correct

Use the following table to answer questions 4 and 5 where the data in the table gives the **cost per unit** for each item.

	Per bouquet flowers	Per camera
Greece	3500 drachma	63000 drachma
Germany	24 marks	360 marks

4. What is the opportunity cost of producing one more camera in Greece?
   a. 15 bouquets of flowers
   b. 1 /15 camera
   c. 1/18 bouquet of flowers
   d. 18 bouquets of flowers
   e. 3500 drachma

5. Which of the following is true?
   a. Greece has a comparative advantage in producing cameras
   b. Germany has a comparative advantage in producing cameras
   c. Greece has an absolute advantage in producing cameras
   d. Germany has an absolute advantage in producing cameras
   e. Both b and d are correct

Consider the following data on rice and coconut production in Indonesia and Malaysia where the data is **production per day**. Assume that the production possibility frontier is linear. With no rice production, Indonesia can produce 200 tons of coconut. With 10,000 tons of rice, Indonesia has no coconut production, etc.

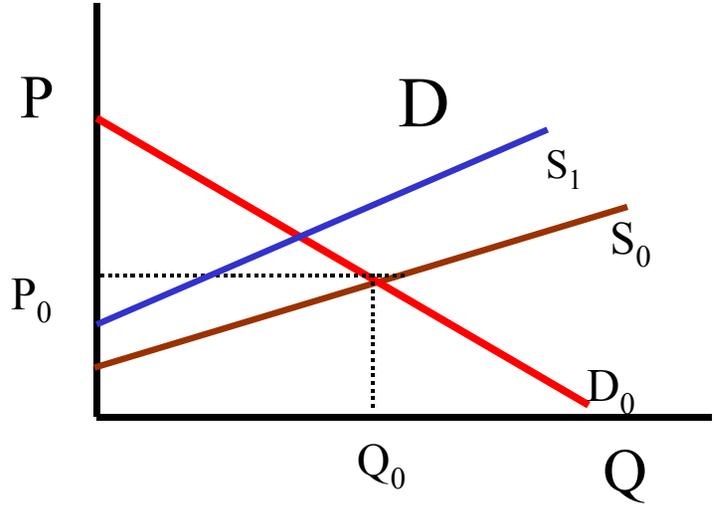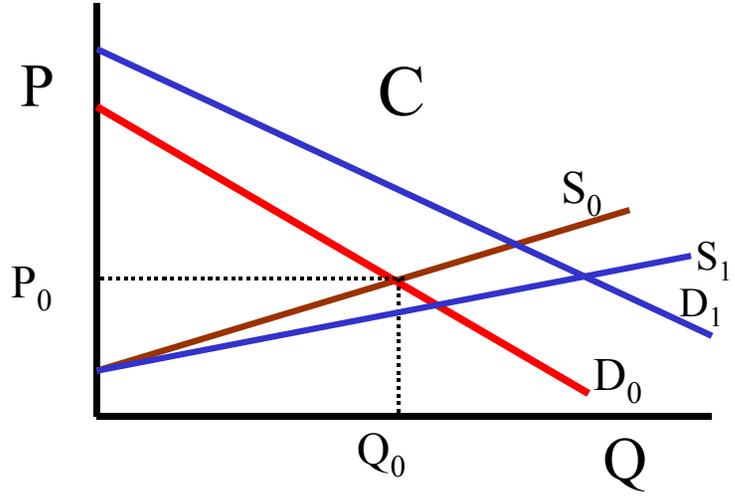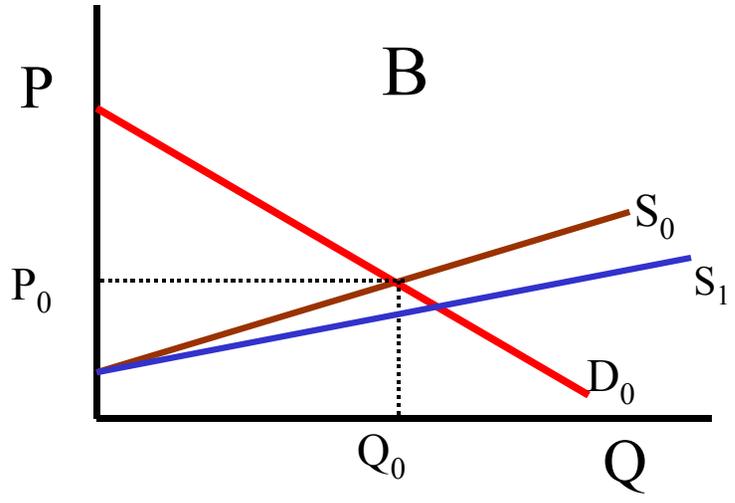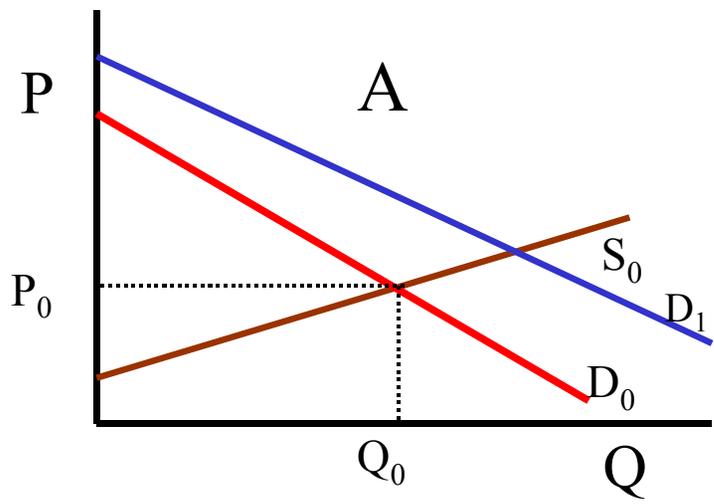|	Rice	Coconut
Indonesia	0	200 tons
Indonesia	10,000 tons	0
Malaysia	0	150 tons
Malaysia	9,000 tons	0

6. If Indonesia produced 50 tons of coconut and Malaysia produced 100 tons of coconut and each used their remaining resources for rice production, what would total rice production be?
    a. 9,000
    b. 12,500
    c. 11,000
    d. 10,500
    e. 8,500

7. Which of the following statements is true?
    a. Indonesia has a comparative advantage in producing rice
    b. Malaysia has a comparative advantage in producing rice
    c. Indonesia has an absolute advantage in producing rice
    d. Both b and c are correct
    e. Both a and c are correct

For questions 8-9, use the diagrams on the next page. In all cases the initial situation is at S_0 and D_0 in the market for the good in question.

8. Which panel best represents the effect of an increase in the selling price of an alternative product the firm could produce?
    a. A
    b. B
    c. C
    d. D

9. Which panel best represents the effect of an improvement in technology for the producing firm and an increase in the price of a competing product for the consumer?
    a. A
    b. B
    c. C
    d. D

A

P

P_0

S_0

D_1

D_0

Q_0

Q

B

P

P_0

S_0

S_1

D_0

Q_0

Q

C

P

P_0

S_0

S_1

D_1

D_0

Q_0

Q

D

P

P_0

S_1

S_0

D_0

Q_0

Q

10. Consider the following hypothetical data on shirt and tie production in Guatemala and Jamaica. Assume that capital is freely mobile so only labor costs matter. Also assume that real wages will tend to equalize so that only labor quantities matter. The data below gives the number of **minutes required per unit of output**.

|	Shirts	Ties
Guatemala	10 minutes	2 minutes
Jamaica	12 minutes	3 minutes

Which of the following statements is true?
a. Guatemala can produce both products in less time per unit
b. Guatemala has a comparative advantage in shirts
c. Jamaica has a comparative advantage in shirts
d. Neither country has a comparative advantage in either product
e. Both a and c are correct

The diagram on the next page is for use with questions 11-13. The two countries are Ukraine and Armenia. The data is output per day in each country. The two products are yams and wheat.

11. When each country is producing more than 3 yams, which of the following is true?
a. The opportunity cost of wheat within Ukraine is 1/6 yam
b. The opportunity cost of a yam within Armenia is 4 wheat
c. Neither country has a comparative advantage in either product
d. Armenia is giving up more yams to get wheat than Ukraine
e. Both a and c are true

12. When each country is producing 1 yam, which of the following statements is true?
a. The opportunity cost of a yam in Ukraine is 2 wheat
b. The opportunity cost of a yam in Armenia is 3 wheat
c. The opportunity cost of wheat in Armenia is 1/2 yam
d. The Ukraine has a comparative advantage in wheat
e. Both a and d are correct

13. When each country is producing 2 yams, what will happen to world wheat production if Ukraine increases its yams production to 3 while Armenia decreases its yam production to 1?
a. Wheat production increases
b. Wheat production falls
c. Wheat production stays the same
d. One cannot tell what happens to wheat production
e. There is more black market trade in yams

Production Possibility Set
YAMS and WHEAT
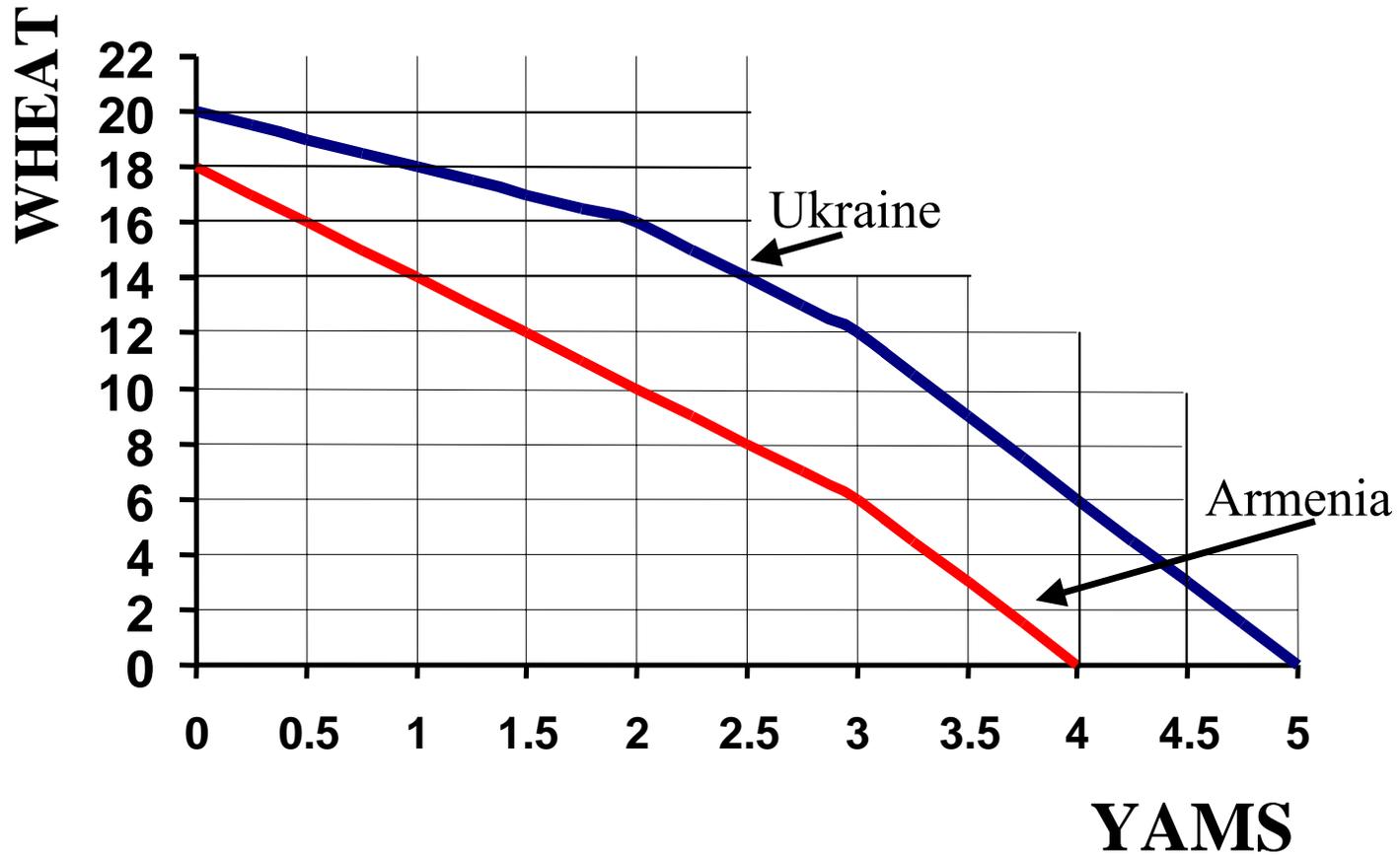
14. Ignoring all other goods, if Jezebel's marginal utility per pound of bread is 30 and per pound of cheese is 120, her
    a. Total utility could be increased by buying more cheese and less bread
    b. Total utility would be maximized if the price per pound of cheese is 4 times the price per pound of bread
    c. Total utility could be increased by buying more bread and less cheese
    d. Total utility would be maximized if the price per pound of cheese is one-fourth the price per pound of bread
    e. Total utility would be maximized if the price per pound of cheese is one-third the price per pound of bread

15. The marginal rate of substitution measures
    a. The additional utility from consuming one more unit of a product
    b. The additional product produced from one more unit of an input
    c. The amount of one good that must be given up to acquire more of another good while holding total utility constant
    d. The percentage change in the quantity demanded of a product when the price of a substitute product changes
    e. The rate at which weak hitting infielders may be traded for slow outfielders

16. The production function gives
    a. All output levels attainable for a given level of input
    b. The change in output that can be obtained from one more dollar of expenditure
    c. The change in output that results from one more unit of an input
    d. The maximum output attainable for a given combination of inputs
    e. The level of output divided by the level of input

17. Marginal physical product measures
    a. The change in cost required to produce one more unit of output
    b. The change in output that can be obtained from one more dollar of expenditure
    c. The change in output that results from one more unit of an input
    d. The change in revenue from the production of one more unit of output
    e. The level of output divided by the level of input

18. Fixed costs are those costs
    a. That the firm is committed to pay for factors of production, regardless of the firm's current decisions
    b. That the firm cannot recover if it liquidates
    c. That are affected by the firm's actions in the current period
    d. That are tied to buildings
    e. That have been adjusted by mafia hit men

19. When a market is purely competitive, buyers and sellers
    a. Produce differentiated products
    b. Often engage in price wars
    c. Are not able to affect the price
    d. Negociate over price for each unit of output
    e. Usually lose money

20. When marginal product is falling but positive
    a. Total product is falling
    b. Average product is falling
    c. Total product is rising at a decreasing rate
    d. Average product is at a maximum
    e. Marginal product is less than average product

21. For this problem $p_1 = 6$, $p_2 = 4$ and $I = 90$. Below is a table of alternative consumption choices q_1 and q_2, their cost and the marginal utility (MU) they provide. Which is the optimal choice?

q1	q2	cost	MU₁	MU₂
15.0000	0.0000	90.0000	0.4090	1.0516
13.6667	2.0000	90.0000	0.4878	0.6969
12.3333	4.0000	90.0000	0.5533	0.5194
11.0000	6.0000	90.0000	0.6132	0.4088
8.3333	10.0000	90.0000	0.7294	0.2725
7.0000	12.0000	90.0000	0.7906	0.2259
5.0000	15.0000	90.0000	0.8929	0.1701
0.0000	22.5000	90.0000	1.3302	0.0671

a. $q_1 = 13.667$ $q_2 = 2$
b. $q_1 = 12.333$, $q_2 = 4$
c. $q_1 = 11$, $q_2 = 6$
d. $q_1 = 8.3333$ $q_2 = 10$
e. $q_1 = 5$, $q_2 = 12$

22. For this problem $p_1 = 8$, $p_2 = 1$ and $I = 40$. Below is a table of alternative consumption choices q_1 and q_2, their cost and the marginal utility (MU) they provide. Which is the optimal choice?

| q1	q2	cost	MU₁	MU₂
5.0000	0.0000	40.0000	0.6423	0.4817
4.5000	4.0000	40.0000	0.8141	0.1866
4.0000	8.0000	40.0000	0.9190	0.1149
3.5000	12.0000	40.0000	1.0039	0.0807
3.0000	16.0000	40.0000	1.0808	0.0600
2.5000	20.0000	40.0000	1.1557	0.0460
1.2500	30.0000	40.0000	1.3607	0.0239
0.0000	40.0000	40.0000	1.6896	0.0101

a. $q_1 = 4.5$ $q_2 = 4$
b. $q_1 = 4$ $q_2 = 8$
c. $q_1 = 3.5$ $q_2 = 12$
d. $q_1 = 3$ $q_2 = 16$
e. $q_1 = 1.25$ $q_2 = 30$

23. Which of the following statements is true?
    a. The substitution effect of a price change measures movements between indifference curves
    b. The income effect of a price change measures the change in the quantity demanded of a good due exclusively to changes in real income with prices held fixed
    c. The income effect of a price change is always positive
    d. The substitution effect of a price change can be of either sign
    e. Both b and d are correct

24. On the graph on the attached page, there is a decrease in the price of good 1. The initial situation is $p_1 = 12$, $p_2 = 4$, and income = 64. The initial equilibrium is at point A. Then the price of p_1 falls to 2. The consumer buys more of good one as its price falls. The new equilibrium is at point B. Substitution and income effects are evaluated at the new utility level. What is the income effect of the movement from point A to point B?
    a. Point A to point B
    b. Point A to point C
    c. Point A to point D
    d. Point C to point B
    e. Point D to point B

Decrease in the price of good 1
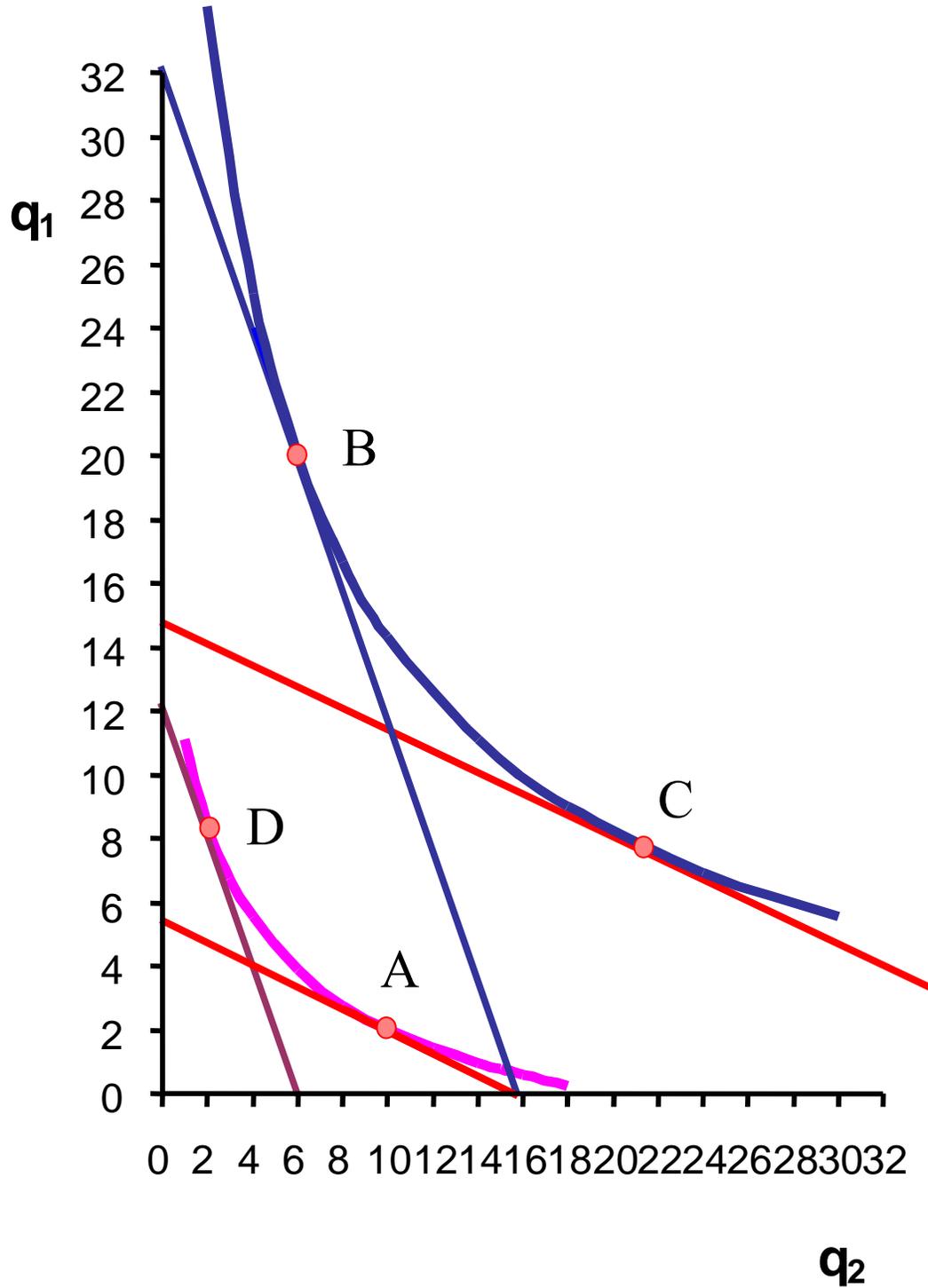
The following table is for use with questions 25 and 26.

Production Data

x (Input)	y (Output)	APP	Discrete MPP
0	0		–
1	9.75		
2	19		
3	27.75		
4	36		
5	43.75		
6	51		
7	57.75	8.25	6.75
8	64		6.25
9	69.75	7.75	
10	75	7.5	
11	79.75	7.25	4.75
12	84		
14	91		
16	96	6	2.5
18	99	5.5	1.5
20	100		
22	99		
24	96	4	-1.5

25. What is the average product of x when x = 12 and y = 84?
    a.   6
    b.   7
    c.   7.5
    d.   4.5
    e.   4.25

26. What is the discrete marginal product of x when x = 20 and y = 100?
    a.   1
    b.   2
    c.   -1
    d.   0.5
    e.   5

Economics 101
Spring 2000
Exam 3A

Question	Correct Answer	Question	Correct Answer
1	c	14	b
2	b	15	c
3	e	16	d
4	d	17	c
5	b	18	a
6	d	19	c
7	d	20	c
8	d	21	c
9	c	22	b
10	e	23	b
11	e	24	b
12	a	25	b
13	c	26	d