Assignment 1 Supply and Demand, Elasticity

Due date: Oct 29

Name:

Student ID:

Choice Questions

1. Shane receives $100 as a birthday gift. In deciding how to spend the money, he narrows his options down to four choices: Option A, Option B, Option C, and Option D. Each option costs $100. Finally, he decides on Option B. The opportunity cost of this decision is

A. the value to Shane of the option he would have chosen had Option B not been available.

B. the value to Shane of Options A, C and D combined.

C. $50.

D. $100.

2. When you calculate your true costs of going to college, what portion of your room-and-board expenses should be included?

A. Your full room-and-board expenses should always be included.

B. None of your room-and-board expenses should ever be included.

C. You should include only the amount by which your room-and-board expenses exceed the income you earn while attending college.

D. You should include only the amount by which your room-and-board expenses exceed the expenses for rent and food if you were not in college.

3. After much consideration, you have chosen Hainan over Tailand as your Winter Break destination this year. However, Winter Break is still months

away, and you may reverse this decision. Which of the following events would prompt you to reverse this decision?

A. The marginal benefit of going to Hainan increases.

B. The marginal cost of going to Hainan decreases.

C. The marginal benefit of going to Tailand decreases.

D. The marginal cost of going to Tailand decreases.

4. You have eaten two bowls of ice cream at Sundae School Ice Cream store. You consider eating a third. As a rational consumer you should make your choice by comparing

A. the benefits from eating all three bowls of ice cream to how much three bowls of ice cream costs.

B. the benefits from eating all three bowls of ice cream to how much one more bowl of ice cream costs.

C. the benefits from eating one more bowl of ice cream to how much three bowls of ice cream costs.

D. the benefits from eating one more bowl of ice cream to how much one more bowl of ice cream costs.

5. Suppose the state of Illinois passes a law that bans smoking in restaurants. As a result, residents of Wisconsin who do not like breathing second-hand smoke begin driving across the border to Illinois to eat at restaurants there. Which of the following principles does this best illustrate?

A. People respond to incentives

B. Rational people think at the margin

C. Trade can make everyone better off

D. Markets are usually a good way to organize economic activity

6. Suppose that a country that has a high level of output per person agrees to trade with a country that has a low level of output per person. Which country can benefit?

A. only the one with a low level of output per person.

B. only the one with a high level of output per person.

C. both

D. Neither

7. Which of the following is an example of a positive, as opposed to normative, statement?

A. Income tax rates should not have been cut as they were a few years ago.

B. The quantity of money has grown too slowly in recent years.

C. When the quantity of money grows rapidly, inflation is a predictable consequence.

D. All of the above are positive statements.

8. Which of the following is not a characteristic of a perfectly competitive market?

A. Different sellers sell identical products.

B. There are many sellers.

C. Sellers must accept the price the market determines.

D. All of the above are characteristics of a perfectly competitive market.

9. To increase tax income, the government plan to levy quantity tax on sellers. If the government expects the buyer to bear all the tax burden and the quantity traded in the market unaffected, then

A. Both the price elasticity of demand and the price elasticity of supply are in between 0 and infinity.

B. The price elasticity of demand is in between 0 and infinity; the price elasticity of supply equals 0.

C. The price elasticity of demand equals 0; the price elasticity of supply is in between 0 and infinity.

D. The price elasticity of demand is infinity; the price elasticity of supply equals 0.

10. Today's supply curve for gasoline could shift in response to a change in

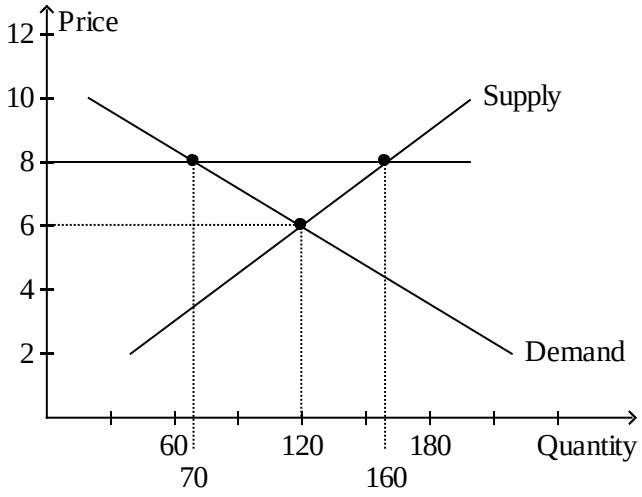
A. today's price of gasoline.

B. the expected future price of gasoline.

C. the number of buyers of gasoline.

D. All of the above are correct.

11. ***Figure 6-5***



(1) If the horizontal line on the graph represents a price ceiling, then the price ceiling is

A. binding and creates a surplus of 40 units of the good.

B. binding and creates a surplus of 90 units of the good.

C. not binding but creates a surplus of 40 units of the good.

D. not binding, and there will be no surplus or shortage of the good.

(2) If the horizontal line on the graph represents a price floor, then the price floor is

A. binding and creates a shortage of 40 units of the good.

B. binding and creates a surplus of 50 units of the good.

C. binding and creates a surplus of 90 units of the good.

D. not binding but creates a surplus of 40 units of the good.

(3) Suppose the market is initially in equilibrium. Then the government imposes a price control, as represented by the horizontal line on the graph. If the price control is a price floor, then the price control

A. causes the quantity demanded to decrease by 50 units, relative to the initial equilibrium.

B. causes the quantity supplied to increase by 40 units, relative to the initial equilibrium.

C. results in some firms being more successful than others in selling their goods.

D. All of the above are correct.

12. Explain how an attempt by the government to lower inflation could cause unemployment to increase in the short-run.

ANS:

To lower inflation, the government may choose to reduce the money supply in the economy. When the money supply is reduced, prices don't adjust immediately. Lower spending, combined with prices that are too high, reduces sales and causes workers to be laid off. Hence, the lower price level is associated with higher

13. One trade-off society faces is between efficiency and equality. Define each term. If the government redistributes income from the rich to the poor, explain how this action affects equality as well as efficiency in the economy. What action(s) could the government take?

ANS:

Efficiency is the property of society getting the most it can from its scarce resources.

Equality is defined as the property of distributing economic prosperity evenly among the members of society.

Often, these two goals conflict. When the government redistributes income from the rich to the poor, it reduces the reward for working hard. Fewer goods and services are produced and the economic pie gets smaller. When the government tries to cut the economic pie into more equal slices, the pie gets smaller.

Policies aimed at achieving a more equal distribution of economic well-being, such as the welfare system, try to help those members of society who are most in need. The individual income tax asks the financially successful to contribute more than others to support the government.

14. Under what conditions might government intervention in a market economy improve the economy's performance?

ANS:

If there is a market failure, such as an externality or monopoly, government regulation might improve the well-being of society by promoting efficiency.

If the distribution of income or wealth is considered to be unfair by society, government intervention might achieve a more equal distribution of economic well-being.

15. Consider the market for butter. The demand curve is given by

$$Q^D = 300 - 2 \times P + 4 \times I,$$

where I is the average income and P is the price of butter. The supply curve is

$$Q^s = 3P - 25 \times P_M - 25,$$

where P_M is the price of milk.

(a) If the average income in Dammam is I = 25 and the price of milk is $P_M = 1$, what is equilibrium in Dammam? (Hint: a market equilibrium consists of equilibrium price and equilibrium quantity)

When I=25, $P_M = 1$,

$$Q^D = 400 - 2 \times P,$$

$$Q^s = 3P - 50.$$

In equilibrium, $Q^D = Q^s$,

i.e., $400 - 2P = 3P - 50.$

$$P = 90, Q = Q^D = Q^s = 220.$$

So the equilibrium price is 90, equilibrium quantity is 220.

(b) Suppose that bad weather conditions raise the price of milk to $P_M = 2$. Find the new equilibrium. (Draw a graph to illustrate your answer)

When I=25, $P_M = 2$,

$$Q^D = 400 - 2 \times P,$$

$$Q^s = 3P - 75.$$

In equilibrium, $Q^D = Q^s$,

i.e., $400 - 2P = 3P - 75.$

$$P = 95, Q = Q^D = Q^s = 210.$$

So the equilibrium price is 95, equilibrium quantity is 210.

(c) If the average income in Dammam is I = 25 and the price of milk is $\mathrm{P_M} = 1$, what is the price elasticity of demand of butter at P=100?

When I=25, $\mathrm{P_M} = 1$, the demand is

$$\mathrm{Q^D} = 400 - 2 \times \mathrm{P}.$$

The price elasticity of demand is

$$e_P = \left| \frac{\mathrm{dQ^D}}{\mathrm{d\,P}} \times \frac{P}{Q^D} \right| = \frac{2P}{Q^D}$$

At $\mathrm{P} = 100$, we have $Q^D = 200$. The price elasticity of demand is

$$e_P = \frac{2\times100}{200} = 1$$

(d) If the price of butter is P = 100 and the price of milk is $\mathrm{P_M} = 1$, what is the income elasticity of demand of butter at I=25?

When $\mathrm{P} = 100$ and $\mathrm{P_M} = 1$, the demand as a function of income is

$$\mathrm{Q^D} = 100 + 4\,\mathrm{I}.$$

The income elasticity of demand is

$$e_I = \frac{\mathrm{dQ^D}}{\mathrm{d\,I}} \times \frac{I}{Q^D} = \frac{4I}{Q^D}$$

At $\mathrm{I} = 25$, we have $Q^D = 200$, the income elasticity of demand is

$$e_I = \frac{4\times25}{200} = 0.5$$

(e) If the price of milk is $\mathrm{P_M} = 4$, what is the price elasticity of supply of butter at $\mathrm{P} = 100$?

When $\mathrm{P_M} = 4$, the supply is

$$\mathrm{Q^S} = 3\mathrm{P} - 125.$$

The price elasticity of supply is

$$e_P = \frac{\mathrm{dQ}^S}{\mathrm{d\,P}} \times \frac{P}{Q^S} = \frac{3P}{Q^S}$$

At $\mathrm{P} = 100$, we have $Q^S = 175$, the price elasticity of supply is

$$e_P = \frac{3\times 100}{175} = 1.71$$

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(f) If the price of butter is P = 100, what is the cross-price elasticity of supply of butter at $\mathrm{P_M} = 10$?

The supply is

$$\mathrm{Q^s} = 3\mathrm{P} - 25 \times \mathrm{P_M} - 25\,.$$

The cross-price elasticity of supply is

$$\mathrm{e} = \frac{\mathrm{dQ}^S}{\mathrm{d}P_M} \times \frac{P_M}{Q^S} = \frac{-25\,P_M}{Q^S}$$

At $\mathrm{P} = 100$, $\mathrm{P_M} = 10$, we have quantity supplied $\mathrm{Q^s} = 25$. The cross-price elasticity of supply is

$$\mathrm{e} = \frac{-25 \times 10}{25} = -10.$$