

Answer the questions in the spaces provided on the question sheets. If you run out of room for an answer, continue on the back of the page. Be succinct. Longer answers don't increase your chance of being right, but increase your chance of saying something wrong. **Show how you got your answers in mathematical questions**

Name: \_\_\_\_\_

1. Say whether the propositions are True or False. If they are False, justify.

(a) The market for tablets is a monopolistic market, with Apple being the monopolist.

**Solution: False.** Apple has a big market share on the tablets market, but isn't the only one selling them.

(b) The law of demand states that the price of a good rises whenever demand decreases.

**Solution: False.** The causation goes in the opposite way: demand decreases when price increases.

(c) Printer and printer carriage are examples of complementary goods.

**Solution: True.**

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2. Answer the following questions regarding consumer demand:

- (a) What is the difference between a “change in demand” and a “change in quantity demanded”? Graph your answer.

**Solution:** A change in demand refers to a shift of the demand curve. A change in quantity demanded refers to a movement along a fixed demand curve.

- (b) For each of the following changes, determine whether there will be a change in quantity demanded or a change in demand (write your answer after each item)

1. a change in the price of a related good
2. a a change in tastes
3. a a change in the number of buyers
4. a a change in price
5. a a change in consumer expectations
6. a a change in income

**Solution:** A change in price causes a change in quantity demanded. All of the other changes listed shift the demand curve.

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3. Let the demand curve for wheat be given by the following formula:

$$Q_d = 250 - 2P$$

and the supply be given by:

$$Q_s = 3P$$

now answer the following questions:

- (a) Does the demand in this problem satisfy the law of demand? Why?

**Solution:**

Yes. The law of demand states that if price increases quantity demanded decreases. Given the negative sign for price ( $-2P$ ), whenever  $P$  increases,  $Q_d$  will decrease.

- (b) Does the supply in this problem satisfy the law of supply? Why?

**Solution:**

Yes. The law of supply states that if price increases quantity supplied increases. Given the positive sign for price ( $3P$ ), whenever  $P$  increases,  $Q_s$  will also increase.

- (c) For which prices will there be no demand for wheat?

**Solution:**

When there's no demand,  $Q_d = 0$ . Thus:

$$250 - 2P = 0$$

which implies:

$$2P = 250$$

and:

$$P = 125$$

that is, demand will be zero for any price equal to or higher than \$125.

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- (d) Plot the demand and the supply curves. Indicate clearly the axes, the intercepts of both curves and the values of  $P$  and  $Q$  at those intercepts.

**Solution:**

- (e) Using the demand and supply equations, determine the market equilibrium (price and quantity)

**Solution:**

In the market equilibrium, demand equals supply, that is,  $Q_d = Q_s$ :

$$250 - 2P = 3P$$

which implies:

$$250 = 5P$$

Solving for  $P$ :

$$P = \frac{250}{5} = 50$$

Thus, in equilibrium  $P^* = 50$ . To know the quantity, we can use either the demand or the supply equations. Let's use the demand equation:

$$Q^* = 250 - 2 \times 50 = 150$$

If we used the supply curve, we would have the same result:

$$Q^* = 3 \times 50 = 150$$

The market equilibrium is, thus,  $P^* = 50$  and  $Q^* = 150$ .