

Please write your answers neatly and legibly.

1. (1 point) Consider the market for bicycles in Orevia. Currently this market is in equilibrium with the equilibrium price, P_1 , and the equilibrium quantity, Q_1 . Suppose that the labor used in producing bicycles lobbies successfully for a higher hourly wage. Given this information and holding everything else constant, what do you predict will happen to the equilibrium price and equilibrium quantity in this market relative to their initial levels?

Answer:

The increase in the hourly wage for the labor used to construct bicycles will cause the supply curve for bicycles to shift to the left: the equilibrium price of bicycles will rise while the equilibrium quantity of bicycles will fall.

$P_2 > P_1$

$Q_2 < Q_1$

2. (1 point) Consider the market for bread in Mongoville. Currently this market is in equilibrium with the equilibrium price at \$2 per loaf of bread and the equilibrium quantity of bread equal to 100 loaves of bread per day. Suppose that in Mongoville people's taste and preferences for bread alter when most of the population adopts a low-carbohydrate, high protein diet (bread is a carbohydrate). At the same time the bread producers in Mongoville are joined by ten new bread producers. Given this information and holding everything else constant, what do you predict will happen to the equilibrium price and equilibrium quantity relative to their initial levels?

Answer:

The adoption of a low-carbohydrate, high protein diet will cause the demand curve for bread to shift to the left as people at every price demand fewer units of bread. (This is like a change in tastes and preferences away from the consumption of bread.) The entry of ten new bread producers into this market represents greater productive capacity and this will result in the supply curve shifting to the right: at every price, suppliers can now supply more units of bread. Since both curves shift and we do not know the relative magnitude of the shift, we can expect that one of our variables (price or quantity) will be indeterminate. The equilibrium price will fall relative to the initial equilibrium price of \$2 per loaf of bread, while the equilibrium quantity of bread may increase, decrease, or remain equal to the original quantity of 100 loaves of bread per day.

$P_2 < P_1$

Q_2 is indeterminate; Q_2 may be greater than, less than or equal to Q_1

3. (2 points) Consider the market for widgets. Currently this market is in equilibrium with the equilibrium price, P_1 , and the equilibrium quantity, Q_1 . Suppose that the income of people in this economy increases while at the same time there is a technological improvement that reduces the cost of producing widgets. Given this information, carefully analyze the impact on the equilibrium price and equilibrium quantity relative to their initial levels. For full credit you need a sound explanation of your final answer.

Answer:

The first issue here is that you know incomes increased but you do not know if widgets are normal or inferior goods. This change will result in a shift in demand: demand will shift to the right if widgets are normal goods and demand will shift to the left if widgets are inferior goods. So, that's a problem to contend with in coming up with our answer.

The second issue is that you know that the technological change will shift the supply curve to the right. So, there will be two potential shifts to analyze. So, here's the analysis:

If widgets are normal goods, demand shifts to the right and supply shifts to the right: the equilibrium quantity of widgets will increase relative to the initial equilibrium quantity and the equilibrium price will be indeterminate.

If widgets are inferior goods, demand shifts to the left and supply shifts to the right: the equilibrium price of widgets will decrease relative to the initial equilibrium price and the equilibrium quantity will be indeterminate.

Scenario 1: Widgets normal: $Q_2 > Q_1$; P_2 is greater than, less than, or equal to P_1

Scenario 2: Widgets inferior: Q_2 is greater than, less than, or equal to Q_1 ; $P_2 < P_1$

4. Consider the market for coffee. This market can currently be described by the following market demand and supply curves where P is the price per cup of coffee measured in cents and Q is the cups of coffee:

$$\text{Market Demand for Coffee: } Q = 500 - 5P$$

$$\text{Market Supply of Coffee: } Q = \frac{5}{3}P - \frac{100}{3}$$

- a. (4 points) Given this information, calculate the equilibrium price and equilibrium quantity of cups of coffee in this market. Also, calculate the value of consumer surplus (CS) and producer surplus (PS). Record your answers, including the relevant units of measurement, in the spaces provided. Show your work for full credit.

Equilibrium price of coffee = _____

Equilibrium quantity of cups of coffee = _____

CS = _____

PS = _____

Answer:

To find the equilibrium price and quantity set the demand equation equal to the supply equation:

$$500 - 5P_e = \frac{5}{3}P_e - \frac{100}{3}$$

$$1500 - 15P_e = 5P_e - 100$$

$$1600 = 20P_e$$

$$P_e = 80 = 80 \text{ cents per cup of coffee}$$

$$Q_e = 500 - 5P_e = 500 - 5(80) = 500 - 400 = 100 \text{ cups of coffee}$$

$$CS = \frac{1}{2}(100 \text{ cents per cup of coffee} - 80 \text{ cents per cup of coffee})(100 \text{ cups of coffee}) = \$10$$

$$PS = \frac{1}{2}(80 \text{ cents per cup of coffee} - 20 \text{ cents per cup of coffee})(100 \text{ cups of coffee}) = \$30$$

Equilibrium price of coffee = _____ 80 cents per cup of coffee _____

Equilibrium quantity of cups of coffee = _____ 100 cups of coffee _____

CS = _____ \$10 _____

PS = _____ \$30 _____

- b. (2 points) Suppose that a price floor is imposed in the market for coffee by the government. If this price floor is set at 90 cents per cup of coffee, what will be the impact on this market?

Provide a verbal description of the impact of this price floor on the equilibrium price in the market, the quantity of coffee sold once the price floor is imposed, and its effect on consumer and producer surplus.

Answer:

To be effective, a price floor must be set above the equilibrium price. Since the equilibrium price in this market is 80 cents per cup of coffee we know that this price floor will have an impact on this market. Fewer cups of coffee will be sold and the price per cup of coffee will rise to the price floor price.

Producer surplus will be affected in two ways by the imposition of the price floor: producer surplus will increase due to the increase in the price per cup of coffee and producer surplus will decrease due to the decrease in the number of cups of coffee being sold. The overall effect on producer surplus of these two opposing impacts, is that producer surplus will decrease (this is because the price floor is set in the elastic region of the demand curve, and that means that an increase in price results in a fall in overall revenue). Producer surplus will fall from \$30 to \$27.50.

Consumer surplus will be affected by the imposition of the price floor: consumers will pay a higher price per cup of coffee and they will consume fewer cups of coffee. Consumer surplus will fall from \$10 to \$2.50.