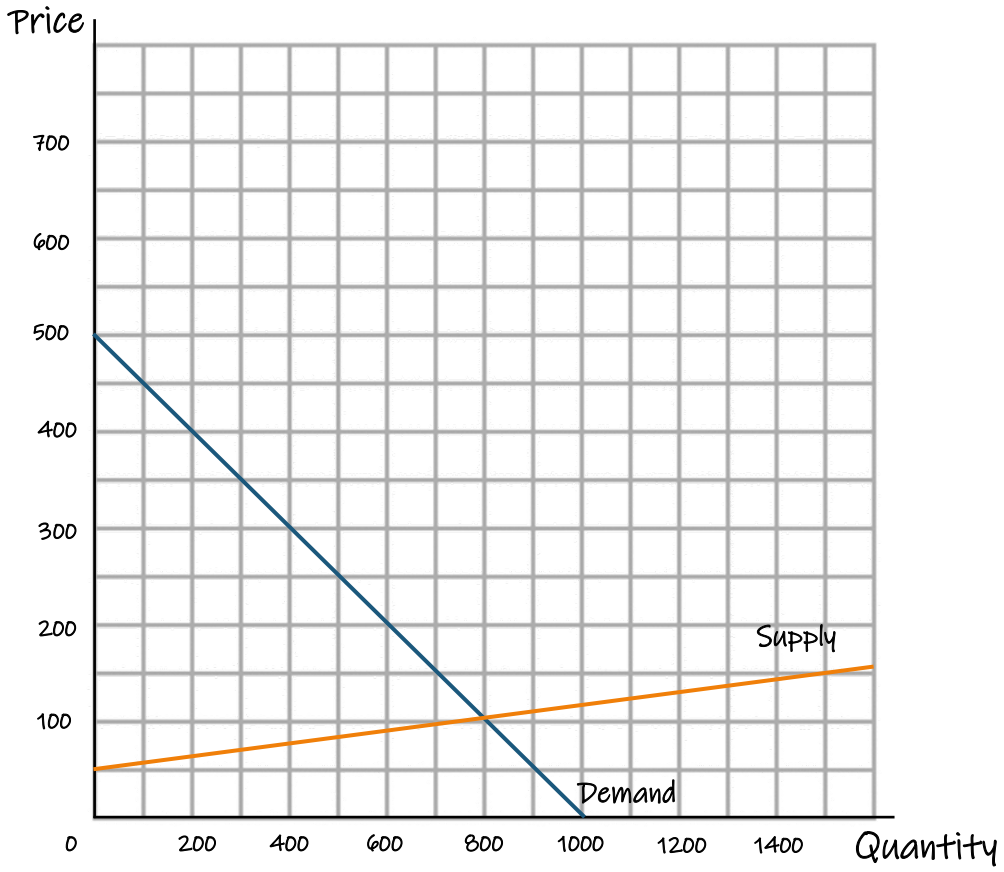
Week 3 Discussion Section - Solutions

Part 1

Consider the market for Webcams. Market demand is described by the function: $Q^d = 1000 - 2P$. Market supply is described by the function: $Q^s = 16P - 800$.

1. Accurately graph the demand and supply curves on the provided grid. Label all axes and curves.



2. Calculate the equilibrium price and quantity in the market for webcams.

Set $Q^d = Q^s$

$$1000 - 2P = 16P - 800$$

$$18P = 1800$$

$$P = \$100$$

$$Q = 1000 - 2 \times 100 \rightarrow Q = 800$$

3. Suppose the current price in the market is $P = \$80.00$, how big is the resulting shortage?

$$Q^d = 1000 - 2 \times 80 = 840$$

$$Q^s = 16 \times 80 - 800 = 480$$

Shortage = $Q^d - Q^s = 840 - 480 = 360\ units.$

Suppose that the demand for webcams changes so that at each price 200 additional webcams are demanded.

4. Update the demand function to reflect this change in demand.

This is an increase in demand, should shift the demand curve to the right by 200 units.

$$Q^d = 1000 + 200 - 2P$$

$$Q^d = 12000 - 2P$$

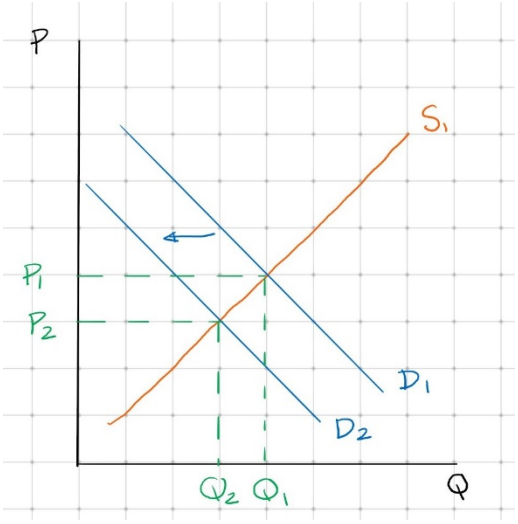
5. Describe an event that could have caused this change in demand.

A global pandemic increases the prevalence of remote work.

Part 2

A survey indicated that Chocolate is Americans' favorite ice cream flavor. For each of the following, use a supply and demand curve diagram to demonstrate the possible effects on demand, supply, or both. Then determine the ultimate impact on the equilibrium price and quantity of chocolate ice cream.

6. The discovery of cheaper synthetic vanilla flavoring lowers the price of vanilla ice cream.

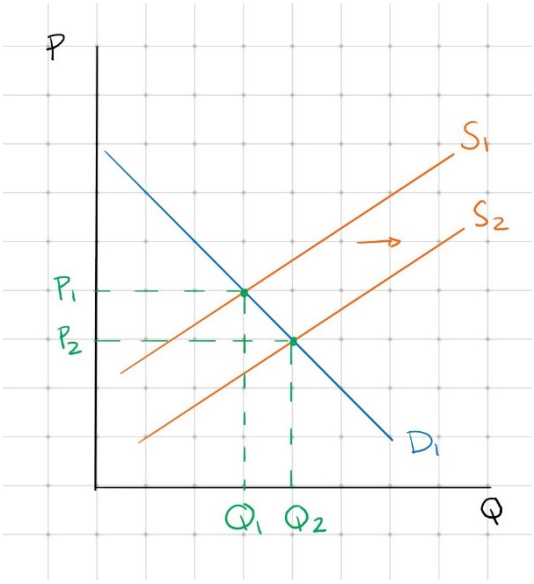


Vanilla ice cream is a substitute for chocolate ice cream.

So, when the price of vanilla ice cream declines there is a decrease in demand for chocolate ice cream.

Demand shifts to the left. The result is a decrease in both the equilibrium price and quantity of chocolate ice cream.

7. New technology for mixing and freezing ice cream lowers manufacturers' costs of producing chocolate ice cream.



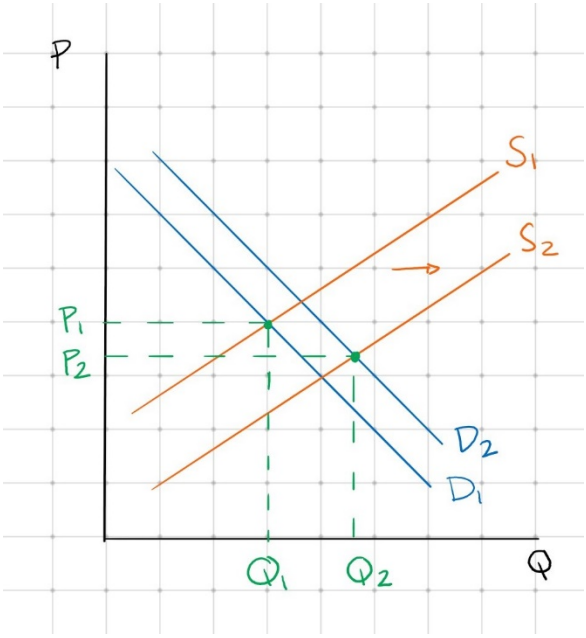
New technology lowers the cost of production; this results in an increase in the supply of chocolate ice cream.

Supply shifts to the right. The result is a decrease in equilibrium price and an increase in equilibrium quantity.

Part 3

Many markets change in predictable ways according to the time of the year, in response to events such as holidays, vacation times, seasonal changes in production, and so on. Use a supply and demand curve diagram to explain the change in price in each of the following cases. *Note that supply and demand may shift simultaneously.*

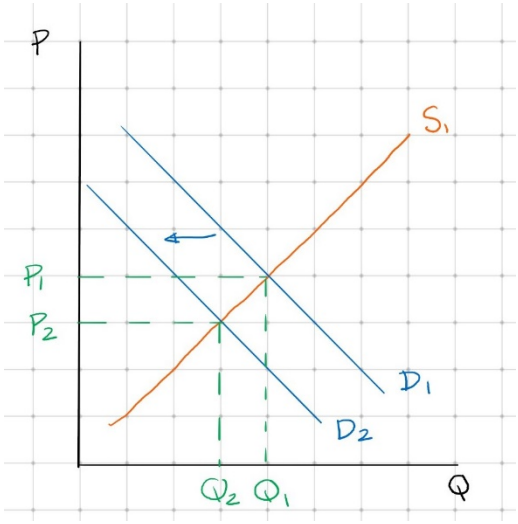
8. Lobster prices usually fall during the summer peak lobster harvest season, even though people like to eat lobster during the summer more than at any other time of year.



In the summer there is an increase in the supply of lobsters and an increase in demand.

If prices fall in the summer, then it must be that the increase in supply is greater than the increase in demand.

9. The price of a Christmas tree is lower after Christmas than before, but fewer trees are sold.



Once Christmas has passed the demand for Christmas trees declines sharply.

The result is a decline in both equilibrium quantity and equilibrium price.

Part 4

Find the flaws in reasoning in the following statement, paying particular attention to the distinction between shifts of and movements along the supply and demand curves. Draw a supply and demand diagram to illustrate what actually happens.

10. "A technological innovation that lowers the cost of producing a good might seem at first to result in a reduction in the price of the good to consumers. But a fall in price will increase demand for the good, and higher demand will send the price up again. It is not certain, therefore, that an innovation will really reduce price in the end."

This is where things go wrong! A fall in price causes an increase in quantity demanded (movement down and to the right along a demand curve).

Here is what actually happens: