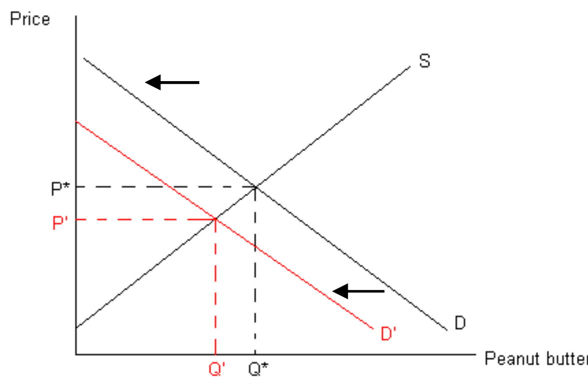
Economics 101: Principles of Microeconomics
Demand and Supply Exercises - Key

Question 1

a. Assume that each of the markets below is initially in equilibrium. Then for each market below, suppose that the indicated event occurs. Illustrate the effect of each event in a diagram and indicate the effects on the equilibrium price and quantity.

<table>
<tr><th></th><th>Market</th><th>Event</th></tr>
<tr><td>i.</td><td>Peanut butter</td><td>The price of jelly increases.
When the price of jelly increases, the quantity demanded of jelly decreases. Because peanut butter and jelly are complementary goods, you will also want less peanut butter. Thus, the demand for peanut butter decreases. The decrease in demand for peanut butter decreases the equilibrium price and quantity of peanut butter.

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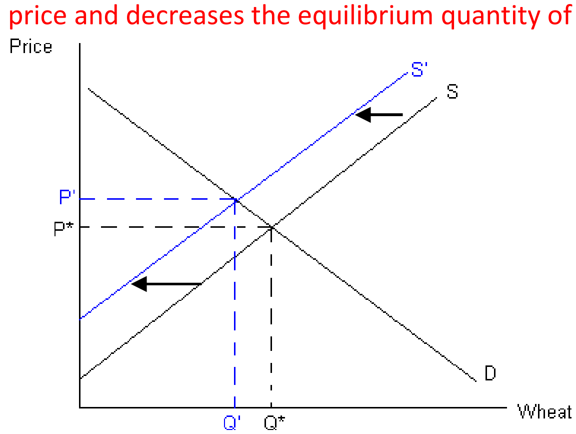
<tr><td>ii.</td><td>Wheat</td><td>Midwest floods destroy 50% of the wheat crop.
The destruction of the wheat crop decreases the supply of wheat. The decrease in the supply of wheat increases the equilibrium price and decreases the equilibrium quantity of wheat.

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<tr><td>iii.</td><td>Instant ramen</td><td>A rise in average family incomes.
Since instant ramen is an inferior good, an increase in family incomes will decrease the demand for instant ramen. The decreased demand results in a decrease in the equilibrium price</td></tr>
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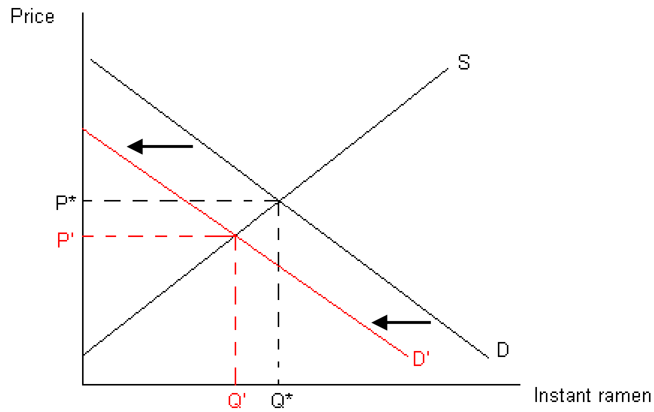
<tr><td></td><td></td><td>and quantity of instant ramen.

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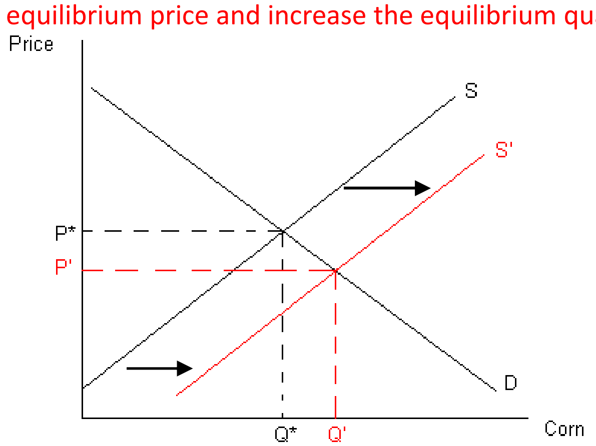
<tr><td>iv.</td><td>Corn</td><td>The price of fertilizer decreases.
A decrease in the price of an input to production will increase the supply of corn. An increase in the supply of corn will decrease the equilibrium price and increase the equilibrium quantity.

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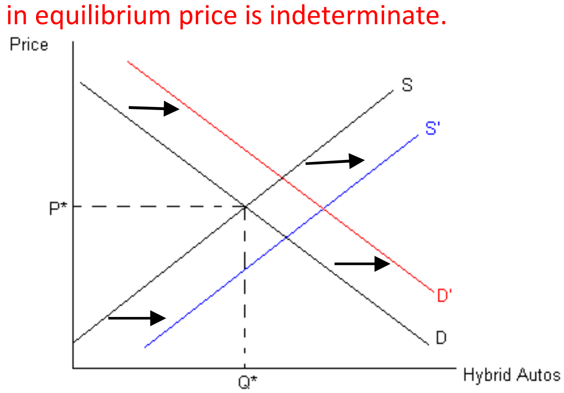
<tr><td>v.</td><td>Hybrid automobiles</td><td>Technological advances reduce costs of producing high-quality hybrid cars and there is an increase in fuel prices.
Technological advances reducing the cost of producing high-quality hybrid cars will increase the supply of these cars. An increase in fuel prices will increase the demand for hybrid cars (since fuel is a complementary good and hybrid cars require less of it). The combined changes in supply and demand will result in an increase in the equilibrium quantity of hybrid cars but the change in equilibrium price is indeterminate.

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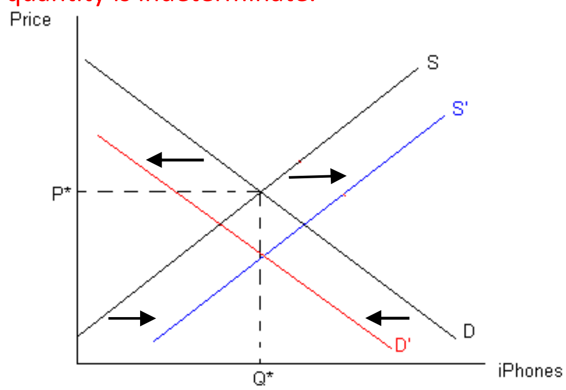
<tr><td>vi.</td><td>iPhones</td><td>Due to free trade agreements, the components used to manufacture iPhones can be purchased more cheaply. There is also a decrease in average household incomes.
When the components (inputs) used to produce iPhones decrease in price, the supply of iPhones increases. The decrease in household incomes will decrease the demand for iPhones (assuming that iPhones are a normal good). The combined changed in demand and supply will result in a decrease in the equilibrium price of iPhones but the change in the equilibrium quantity is indeterminate.

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b. Explain the adjustment process in the peanut butter market after the shock to the new equilibrium.
When the price of jelly increases, consumers will purchase less jelly (quantity demanded falls) and also demand less peanut butter (which they eat with jelly). At the initial equilibrium price (P*) and the new demand, the quantity demanded is lower than the quantity of peanut butter supplied. Thus, there is a surplus of peanut butter. In response to the surplus, price begins to fall and thus the quantity of peanut butter supplied falls and the quantity demanded increases (moving along the new demand and original supply curves) until they are equal and the new equilibrium is reached.

c. Explain the adjustment process in the wheat market after the shock to the new equilibrium.
When half of the wheat crop is destroyed, the supply of wheat falls. At the initial equilibrium price (P*) and the new supply curve, the quantity demanded exceeds the quantity supplied. Thus, there is a shortage of wheat. In response to the shortage, the price begins to be bid up. The increasing price causes the quantity demanded to fall and the quantity supplied to increase (moving along the original demand and new supply curves) until they are equal and the new equilibrium is established.