Worksheet 5: More Supply and Demand Analysis

In Worksheet 4, we saw how price ceilings and floors forcing prices below or above the equilibrium price can lead to shortages and surpluses.

In this worksheet, you can see how changes in supply or demand can change the equilibrium price, and how a non-binding price floor or ceiling can become binding as a result.

Problem 1 – A Change in Supply

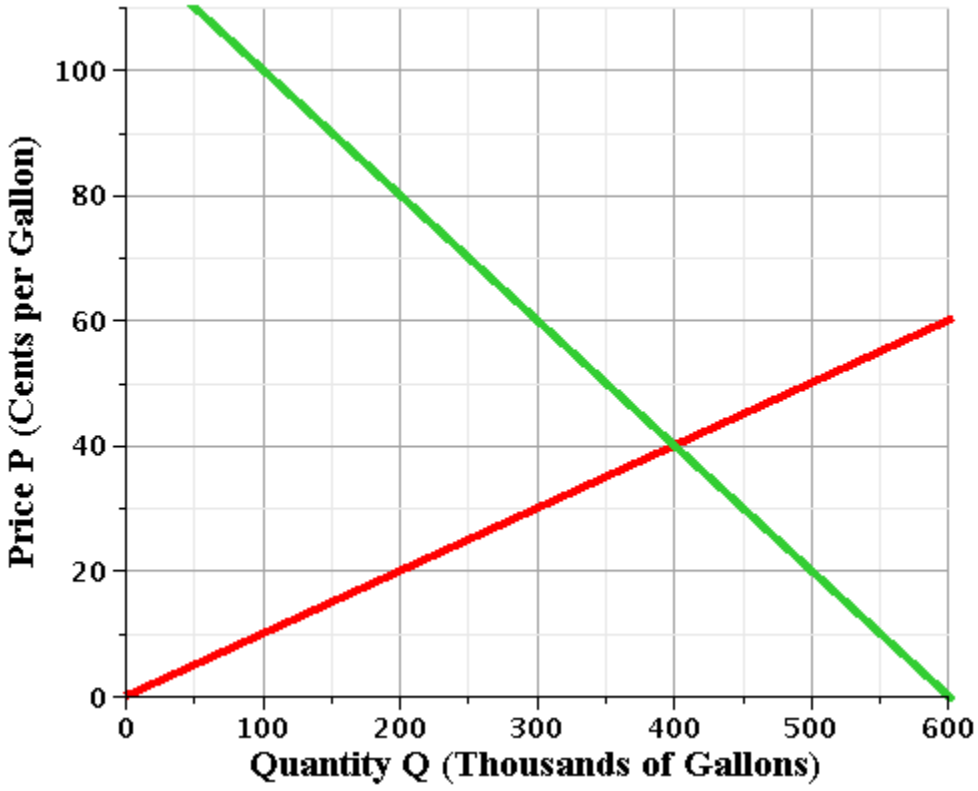
Below are the supply and demand for gasoline (the **gasoline market**) in 1973. The upward sloping curve is the supply curve, and the downward sloping curve is the demand curve.

- What are the equilibrium price and quantity of gasoline? Be careful to read the quantity correctly!

P* = _____ and Q*=_____.

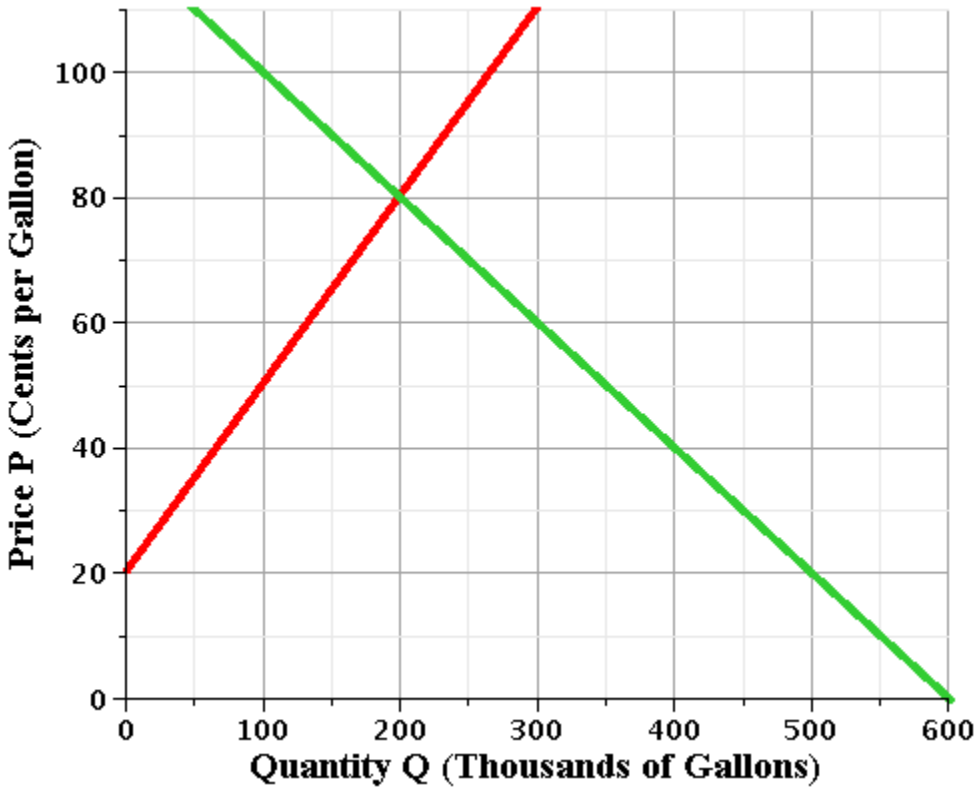
- If there is a price ceiling of 50 cents per gallon, is it a **binding** price ceiling? _____.
- Let's say that suddenly oil, which is needed to make gasoline, gets more expensive. Will this increase or decrease the supply of gasoline?

- In which direction will the supply curve shift? _____.



If you said that the supply curve would shift up or to the left (either one), then you are right!

Let's say that demand stayed the same, and the new supply curve made the market look something like this:



- What are the equilibrium price and quantity now? Again, be careful about the quantity.

P* _____ and Q* = _____.

- Remember that 50-cent price ceiling I mentioned earlier? Is it binding now? _____.

- At P = 50 cents, how many gallons of gas to people want to buy (quantity demanded)?

At P = 50 cents, $\mathbf{Q_D}$ = _____.

- At P = 50 cents, how many gallons are producers willing to sell (quantity supplied)?

At P= 50 cents, $\mathbf{Q_S}$ = _____.

- Is there a shortage, surplus or neither at this price? _____.

  If there is a shortage or surplus, how big is it? _____.

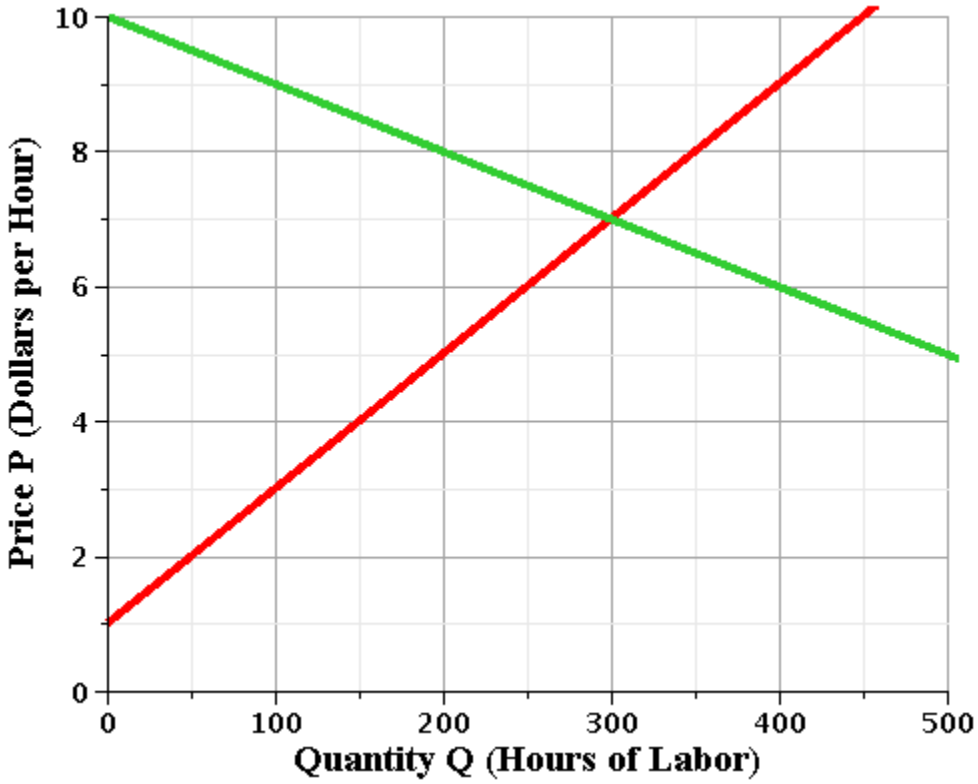
Problem 2 – A Change in Demand

Below are the supply and demand curves for unskilled restaurant workers (the **labor market**). People who wash dishes, for example. The supply curve is determined by workers, and the demand curve represents the restaurants who can hire them.

- What are the equilibrium price and quantity of labor?

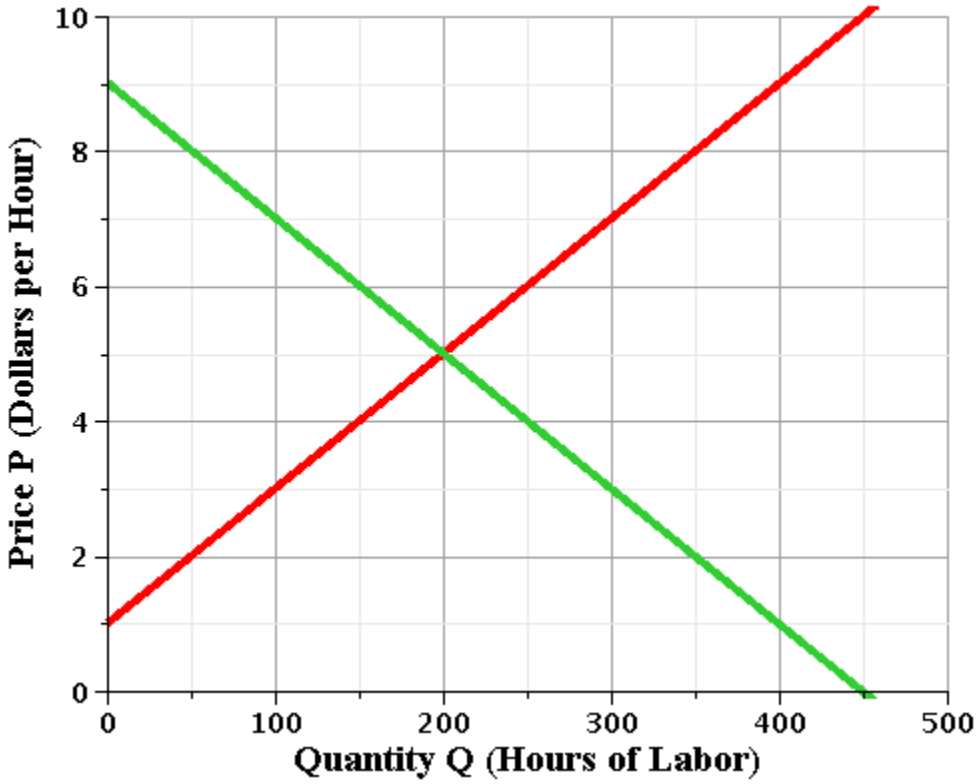
P* = _____ and Q*=_____.

- If there is a price floor (a "minimum wage") of 6 dollars per hour, is it a **binding** price floor? _____.
- Let's say that dishwashing machines get cheaper.
  - Are dishwashing machines a complement or a substitute for labor? _____.
  - In which direction will the demand curve shift? _____.



If you said that the demand curve will shift down or to the left (either one), then you are correct!

Let's say that supply of labor stayed the same, and the new demand curve made the market look something like this:



What are the equilibrium price and quantity now?

P* _____ and Q* = _____.

- Remember that 6-dollar price floor I mentioned earlier? Is it binding now? _____.

- At P = 6 dollars, how many hours of labor do restaurants want to hire (quantity demanded)?

  At P = 6 dollars, $\mathbf{Q_D}$ = _____.

- At P = 6 dollars, how many hours are laborers willing to work (quantity supplied)?

  At P= 6 dollars, $\mathbf{Q_S}$ = _____.

- Is there a shortage, surplus or neither at this price? _____.

  If there is a shortage or surplus, how big is it? _____.