1. Stable and Unstable Market Equilibria

In our example in class, our initial supply curve was $p = q^2 - 4q + 5$ and the demand curve was $2p + q = 6$.

I have marked the two equilibrium points, A and B. Suppose that the market begins at the equilibrium point A, but for some reason, a manufacturer wants to increase production. So the quantity of product in the market increases, like this:

Note that to produce this much product, sellers must charge a higher price than buyers are willing to pay (because the supply curve is above the demand curve for this value of $q$). So some product goes unsold. Sellers will then reduce how much they manufacture, so they don’t end up with unsold merchandise:
Note that this pushes the market back towards the equilibrium at A. Now suppose that manufacturers produce too little, so the quantity of product in the market is less than the equilibrium value at A:

At this value of $q$, the demand curve is above the supply curve. That means that buyers are willing to pay more for the product than sellers are asking. As a result, sellers will produce more of the product, to take advantage of all the demand. But an increase in production is an increase in $q$, so again this pushes the market back towards the equilibrium point at A:
To summarize, if the quantity $q$ in the marketplace starts close to the equilibrium point A, then market forces will push the market closer to A. For this reason, the equilibrium A is called a **stable** equilibrium.

Now suppose that sellers produce the following quantity of product:

As before, buyers are willing to pay more than sellers are asking, so sellers will produce more product. This is an increase in $q$, so $q$ moves to the right:
Note that this time, market forces push the market away from the equilibrium B, which the market was near to begin with. Now consider what happens if \( q \) starts below the equilibrium value at B:

Since the demand curve is below the supply curve, sellers are asking a higher price than buyers are willing to pay. As a result, sellers don’t sell all their product, so they will produce less. This is a decrease in \( q \):
Note that again, in this case, market forces push the market further from the equilibrium B. To summarize, if the quantity $q$ in the marketplace starts close to the equilibrium point B, then market forces will push the market *further* from the equilibrium B. Since any disruption from the equilibrium at B causes the market to move far from B, the equilibrium at B is called *unstable*.

Note that at the stable equilibrium, the supply curve crosses from below the demand curve to above it. At the unstable equilibrium, the supply curve crosses from above the demand curve to below it. This is an easy way to classify market equilibrium points as stable or unstable. Here is another pair of supply and demand curves, with equilibrium points quickly classified as stable or unstable according to this rule: