**Question 1.**

Consider the Cournot market setup with two firms (A & B) with the following market demand

and zero marginal and average costs where the Nash equilibrium in simultaneous game was each firm producing $40 and making $1600 profit.

Now assume that the firms decide on their production sequentially. Firm A commits to an output first and Firm B decides on her output after Firm A.

1. Find the best response function for Firm A.
2. Find the best response function for Firm B.
3. Find the sequential Nash equilibrium, profit for each firm and compare it with the simultaneous Nash equilibrium.
4. Assume that there is a fix entry cost to the market, which is $785. Find the entry deterring strategy for firm A and conclude if the strategy is better than the one in which Firm B enters and both maximize their profit?