The table below shows the marginal benefits and costs of beer production and consumption in Bozeman per week:

Quantity Produced/Consumed (# six-packs per week)	Private Marginal Costs (Supply)	Private Marginal Benefits (Demand)	Social Marginal Costs
200	5	9	7
400	6	8	8
600	7	7	9
800	8	6	10
1000	9	5	11

1. Graph these curves below.

2. Based on these private costs and benefits, what will be the equilibrium price of a six-pack in Bozeman? **$7.00**

3. Based on these private costs and benefits, what will be the equilibrium quantity of six-packs sold per week? **600**
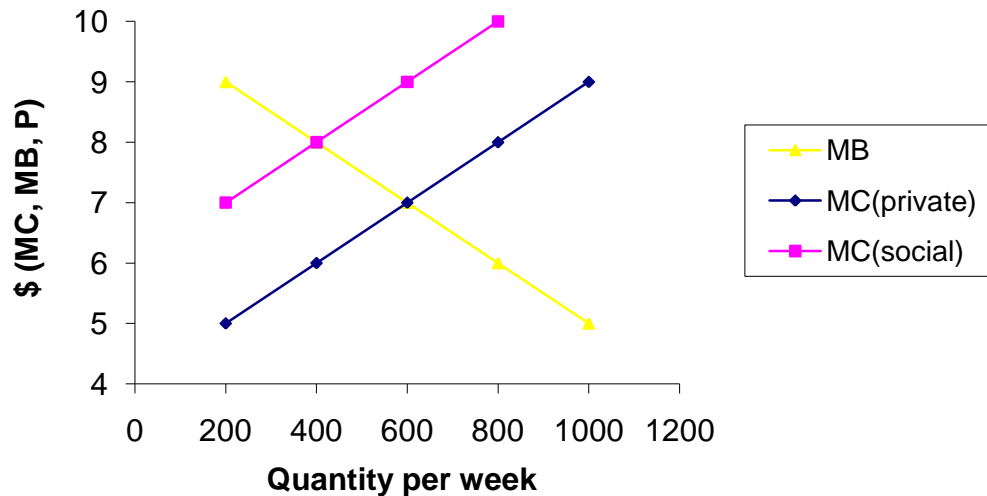
4. Is the equilibrium quantity of six-packs sold per week socially optimal/socially efficient? Why or why not?

> **No. There are likely to be negative externalities associated with beer consumption that are not included in the private marginal cost values above.**

5. Are there likely to be negative externalities associated with beer production and consumption in Bozeman? If so, describe some of them. If not, why not?

> **Yes. Health costs (including higher insurance premiums for residents of Bozeman, longer wait times because of increases in health issues, increased demand for health services that raises their prices), social costs including the costs of drunk driving itself (accidents, injuries, fatalities) and increased costs of finding and punishing drunk drivers (policing, courts, etc), higher car insurance premiums due to more car accidents, etc.**

6. Is there a way that one could estimate the size or dollar value of these negative externalities? If so, how? If not, why not?

> **Of course. Ideally, one could look at similar areas, with the exception that one area is "dry" (no alcohol consumption allowed) and compare health and other costs among the two. Without access to such an experiment, one could get an idea of the costs by comparing areas with different rates of beer consumption and estimate the differences in the costs mentioned above.**

7. Suppose that an economist estimates that the negative externalities associated with beer production and consumption in Bozeman average $2.00 per six-pack of beer sold/consumed (she also concludes that there are no positive externalities associated with beer production and consumption). Based on this finding, complete the "Social Marginal Costs" column of the table above.

8. Plot the social marginal cost curve in the graph above.

9. Based on the social costs and benefits, what is the socially optimal price of a six-pack? **$8.00**

10. Based on the social costs and benefits, what is the socially optimal quantity of six-packs sold per week? **400**

11. Propose a method to get from the private/market level of beer consumption to the socially optimal level of beer consumption.

> **Ideas include a tax of $2.00 per six-pack or a quota of 400 six-packs sold per week.**