

2. Externalities: Reconsider question 1. Assume that the demand curve, supply curve, and marginal damage cost curve are the same as in the statement of question 1.
 - a. Suppose that you are not allowed—for political reasons—to impose a tax, and instead Production Distribution Coordination (PDC) imposes a limit on how much of power plant capacity can be operated. What should that limit be?
 - b. What is the equilibrium price and quantity in the PDC-quota equilibrium?
 - c. Suppose that PDC decides not to impose a production quota but rather a price floor. What price floor should it choose?
 - d. What is the equilibrium price and quantity in the PDC-price floor equilibrium?

4. Externalities: Suppose that we have a fleet of 100 fishing boats. The value of the fish each boat can catch (in dollars) is given by $F = 10,000 - 50B$, where B is the number of boats that are fishing. (Intuitively, the more boats there are fishing, the fewer fish each boat can catch.) The cost of maintaining a boat in the fishing fleet is \$5,000.

a. What is the equilibrium price and quantity in the free-market equilibrium?

b. What is the producer surplus in the free-market equilibrium?

c. What number of fishing boats would maximize the societal surplus from the fishing industry?

d. What tax would you impose on each fishing boat if you were a benevolent government that sought to maximize the societal surplus from the fishing industry?

- c. What is the total societal surplus as a function of government blacksmith training expenditures T ?
- d. Let government training expenditures run from \$0 to \$10,000 by \$1,000 increments. Compute total societal surplus for each of these eleven possible government spending levels.
- e. How much would you recommend that the government spend on blacksmith training?