

12.9 Exercises

1. Expand the retail water demand point (eight million, \$1.50) using an elasticity of -0.3 . Suppose that the relationship between retail water deliveries and natural water pumping is given by $W_{rtl} = 0.8W_{ntrl} - 500000$. What is the demand for retail water expressed in units of natural water? (Note: your answer is not the demand for natural water because processing costs are not included.) If you mistakenly used average conveyance losses to perform this conversion, what would your answer be?
2. For each of the five sectors within the first model of chapter 12, enter the marginal net benefits formula in the evenly numbered columns of a spreadsheet. Use the first twenty rows after your heading row(s). Put water quantities in the odd numbered columns. Hence, each pair of columns will pertain to a single sector. Using different quantity ranges for each sector, enter quantities that are evenly spaced. After setting this up correctly and computing 20 MNBs for each sector, pinpoint five quantities (one for each sector) yielding proximate MNBs. Add these five quantities and discuss whether your results correspond with table 12.2.
3. For each of the five sectors within the first model of chapter 12, enter the inverted marginal net benefits formula in the second through sixth columns of a spreadsheet. Make these entries functionally dependent on values in column 1. Use the first twenty rows after your heading row(s). Let entries in the seventh column be sums across columns 2-6. Place evenly spaced, ascending values for MNBs in the first column. Discuss whether your results correspond with table 12.2. (Clearly, this approach is more direct than that of the previous question, but it is only available when MNB functions are simple enough to be inverted.)