Name:

Score: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example 11.5: Now, let’s examine the effect of income taxes on the replacement of the SMP machine. Recall from Example 11.1, the defender was purchased 10 years ago. Since SMP machines qualify as 5-year property, the defender is fully depreciated (i.e., its book value is 0). If the defender is replaced, it will have a market value of $50,000. If it is retained for another 5 years, it will have a negligible salvage value. Operating and maintenance costs for the defender can be represented by a $5,000 gradient series added to a uniform series of $120,000.

The challenger has a cost basis of $500,000. O&M costs for the challenger can be represented by a $5,000 gradient series added to a uniform series of $10,000. At the end of the 5-year planning horizon, the challenger will have a salvage value of $200,000.

Based on a 40 percent income tax rate, MACRS-GDS 5-year property for both the defender and the challenger, and a 10 percent after-tax MARR, use an after-tax equivalent uniform annual cost analysis to determine if the defender should be replaced.



