37.4 A company pays $500K for a warehouse that it plans to hold for 15 years. The warehouse will save the company $5000 per month in shipping costs, boosting profit. Maintenance and taxes cost $10,000 per year. At the end of 15 years, what sale price is needed to realize an 8% rate of return?

A. $\$23K$

B. $\$230K$

C. $\$780K$

D. $\$1.7M$

Draw a cash flow diagram or make a list of cash flows.

In Year 0, there is an initial payment of $500K (negative).

In Years 1-15, there is a monthly savings of $5K which translates to a $60K increase to the annual revenue. There is also $10K in annual costs, included taxes. Therefore, the net profit after tax is $(12)(\$5K) - \$10K = \$50K$ per year.

In Year 15, there is a salvage value of unknown magnitude which is being sought in this problem.

Write an expression for the present value. The rate of return is the interest rate that makes the present value equal to zero, in this case, $i = 8\%$. Use the $i = 8\%$ Factor Table to retreive the cash flow factors. Solve for S, the salvage value.

$$PV = -\$500K + \$50K\,(P/A, 8\%, 15) + S\,(P/F, 8\%, 15) = 0$$

$$-\$500K + \$50K\,(8.5595) + S\,(0.3152) = 0$$

$$S = \$228,506$$

Answer B