

A company that has a two-year contract to haul ore from an open-pit mine to loading docks for shipping needs 200 additional trucks. Purchased trucks have a useful life of two years and a purchase cost of \$140,000 each. The company can lease trucks for \$80,000 per year (paid at the beginning of the year). Purchased trucks will be purchased only at the beginning of the two-year period and have no salvage value at the end of two years. The mining company has \$8 million cash available to lease and/or buy trucks at the beginning of year 1. In addition, the company can obtain a loan each year for as much as \$20 million at 12% interest per year. The loan agreement requires that the company repay the borrowed amount plus interest at the end of each year. Each truck will earn \$120,000 per year, which will become part of the cash flow of funds available to the company for truck leasing and loan repayment. The company wants to minimize the total cost of the trucks over the two-year period. Formulate a linear programming model for this problem. (Do not attempt to solve.)