**Problem Set 1:**

**Information and Forecasting**

**Solutions**

1a. To determine if EDI will pay for itself within the first five years, we must begin by determining the annual costs associated with the current, manual system over this period:

Yr. (Order volume x cost/order) + (errors x cost/error) = Annual Cost

1 (20,000 x $2.50) + ((20,000 x 0.012) x $5.00) = $ 51,200

2 (20,000 x $2.50) + ((22,000 x 0.012) x $5.00) = $ 56,320

3 (25,000 x $3.00) + ((25,000 x 0.012) x $5.00) = $ 76,500

4 (30,000 x $3.00) + ((30,000 x 0.012) x $5.00) = $ 91,800

5 (36,000 x $3.00) + ((36,000 x 0.012) x $5.00) = $110,160

The cumulative total cost of the manual system is $385,980

Now calculate the cost of EDI over the same period

**EDI System Costs**

Yr. (Order volume x cost/order ) + (errors x cost/error) + salary= Annual Cost

0 Upfront implementation cost = $100,000

1 (20,000 x $.50)+((20,000 x 0.003) x $8)+($38,000 x 1.030) = $ 48,480

2 (22,000 x $.50)+((22,000 x 0.003) x $8)+($38,000 x 1.031) = $ 50,668

3 (25,000 x $.50)+((25,000 x 0.003) x $8)+($38,000 x 1.032) = $ 53,414

4 (30,000 x $.50)+((30,000 x 0.003) x $8)+($38,000 x 1.033) = $ 57,224

5 (36,000 x $.50)+((36,000 x 0.003) x $8)+($38,000 x 1.034) = $ 61,633

The cumulative cost of the EDI system is: $371,439

By comparing the two total five-year costs, we can see that EDI would pay for itself within the specified period. It is, in fact, in the fifth year that EDI pays itself off.

Note: This problem, like most other cost comparison problems in the textbook, does not consider the time value of money.

1b. This is a creative thinking question. Responses might include but are not limited to: improved customer service through increased productivity, higher order accuracy, and better order tracking. Mr. McNealy might also expect improved relations with all channel members through better coordination and cooperation in the order process and delivery.