

### Sporting Goods 2003-2004

1. Can you identify holiday or seasonal periods that cause the spikes in the data?
2. a) Generate quadratic and cubic models for this data.  
b) What is the marginal sales for this department using each model.  
c) Which model do you feel best predicts future trends and explain your rationale.  
d) Which model better predicts max and min values for the department? Compare actual and model generated max and min values. Show backup analytic work.
3. Let's assume that an average sporting goods department item sells for \$50 and costs \$18 with an operating overhead of \$400,000. Provide backup computation and graphs when answering the following items. Note that this problem will require additional spreadsheet analysis.
  - a) Find the number of units sold per week. Graph the result.
  - b) Find the breakeven point for the number of units to be sold. Also, compute the total number of units sold throughout the year. (sum weekly totals.)
  - c) Define the profit function in terms of units sold. Also, find the total sporting goods department profit (or loss) for the 2003-2004 year.
4. What is the percent of sales during the peak periods?
  - a) Identify your peak periods.
  - b) Find the total sales during the peak periods.
  - c) Find the total sales during all the weeks and compute the percent of sales during the peak periods.