DISC 4365 Astro Forecasting Exercises

The alert student will recall that Charlie Kerfeld manages the Shed in Union Station. Charlie needs some help with several forecasting problems:

1. Additive seasonal adjustment. The most popular product in the Shed is the Jeff Bagwell Self-Adhesive Reusable Goatee, made from 100% Anglo-Nubian goat hair. Sales by quarter for the last two years are shown below (in thousands of goatees). Perform additive seasonal adjustment.

Year	Qtr	Data
2001	1	20
	2	22
	3	37
	4	31
2002	1	12
	2	23
	3	40
	4	29

2. Multiplicative seasonal adjustment. Now perform multiplicative seasonal adjustment for the goatee data in question 1. Which procedure works best?

3. Simple exponential smoothing. Another popular product is Geoff Blum's Color Enhancing Mousse. Inventory is running low and Charlie needs a sales forecast to replenish stocks. Sales for April – June are shown below. Figures are in thousands of cases. All colors (red, blue, plum, and indigo) are combined in the data.

Apr	106
May	195
June	119

How many cases of mousse will Charlie sell for the remainder of the season, July – September? Use simple exponential smoothing with a weight of 0.50 to answer this question. You may assume there is no seasonality in sales of this product.

4. Trend smoothing. Charlie suspects a trend in sales of Astroette Cheerleader Calendars. Forecast sales for 2003 - 2004 based on the history shown below (from the Shed and its predecessor at the Dome). Data are in millions of dollars.

1999	$5.0
2000	$8.0
2001	$9.0
2002	$13.0

Use trend-adjusted smoothing with level weight = 0.20, trend weight = 0.10, and damping parameter = 0.90.