TO INFINITY & BEYOND...

A time series is a set of data collected over a period of time. The purpose of generating time series is to allow the accurate prediction of future events. Time series contains short term variations and a long term trend. The short term variations are seasonal, cyclical or residual. A trend line can be fitted to a scattergraph of the time series data by eye or by regression formulae. A third method using moving averages is generally used to obtain the trend line. The trend line represents the time series data with the short term variations averaged out.

Source: A First Course in Statistics, Dexter J Booth MSc PhD CMath FIMA, DPP, London, 1992.

1. The quarterly retail sales (in thousands of pounds) for a TOYS R US retail outlet are recorded for four years. Calculate the trend and the four seasonal fluctuations.

Quarter	1996	1997	1998	1999
I	£295.00	£257.00	£255.00	£255.00
II	£283.00	£284.00	£254.00	£260.00
III	£266.00	£251.00	£255.00	£249.00
IV	£265.00	£261.00	£258.00	£261.00

2. A small toy shop in Weston-super-Mare recorded its quarterly retail sales over three years.

Quarter	1997	1998	1999
I	£35.00	£42.00	£41.00
II	£52.00	£57.00	£61.00
III	£83.00	£85.00	£92.00
IV	£43.00	£43.00	£45.00

(a) Find the trend and the seasonal adjustments.
(b) Forecast the value of sales for the first two quarters of 2000.