Time series, smoothing and seasonality

Learn and practise | Free preview

A sample from this topic. The complete topic collection contains three different resources and worked solutions.

Read the worked example, then show each step in the practice questions. A scientific, statistical or financial calculator, or suitable spreadsheet, can support these calculations. Record the formula, inputs and interpretation.

What you will practise

• Investigating and modelling time series data

Useful starting skills: Relevant General Mathematics Units 1–2 arithmetic, algebra, statistics, matrices and networks.

A time series records values in time order. Separate long-term trend, recurring seasonal movement and irregular variation.

Moving means smooth short fluctuations. Seasonal adjustment divides an observed value by its seasonal index; a forecast is re-seasonalised by multiplying by the relevant index.

Worked example

Quarterly sales are 80, 120, 100, 140. Find annual mean and seasonal ratios to that mean.

Total 440/4=110

divide each quarter by 110.

Answer: Mean 110; ratios 8/11, 12/11, 10/11, 14/11.

Try it yourself

Name: _____ Date: _____

1. Find the centred 3-point moving mean for values 8, 11, 14.

2. Find the 3-point moving median of 4, 20, 6.

Answers and explanations

Check the method as well as the final answer. An alternative correct method is also valid.

1. 11.

(8+11+14)/3.

2. 6.

Order 4, 6, 20; the middle is 6.

Curriculum reference: General Mathematics Units 3–4 — Investigating and modelling time series data

Independent original resource. Not published or endorsed by VCAA. This focused set supports the listed skills; it is not a complete course or an official assessment.

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