Fit a linear time trend, forecast and discuss the limits of extending it.

Key skills | Free preview

Learning target: Fit a linear time trend, forecast and discuss the limits of extending it.

Time-series modelling must distinguish a trend from recurring seasonal effects. If seasonal indices are available, deseasonalise before fitting the underlying trend, then restore the relevant season when forecasting. The time index must continue consistently into the forecast period. A model based on a short series is especially sensitive to structural change and unsupported extrapolation.

Try the mathematics

Task 1. For t=1,2,3,4, observations are 84,132,92,144. Independently estimated seasonal indices are 0.8,1.2,0.8,1.2. Deseasonalise the observations and fit their linear trend.

Continue with the full worksheet

The complete resource has 2 focused task sets and substantive worked solutions. Use an exercise book or print the A4 worksheet. This preview shows the first task without its full solution.

Find this resource: https://resources.aspiretopowerlearning.com.au/vce/skills/aspire-internal-gm-u34-o1-aos1-ks-17/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). General Mathematics; Units 3–4; Outcome 1; Key skills; Data analysis; bullet 17; p. 90.

The learning target is a concise paraphrase. Aspire reference: aspire-internal-gm-u34-o1-aos1-ks-17. This is an internal identifier, not an official VCAA code.

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