Solutions

Marking: **K** knowledge, **App** use of the case or data, **An** analysis (a chain of reasons: cause, then effect), **Ev** evaluation (a judgement with a reason). In calculations, **M1** is for the method and **A1** for the answer; **B1** is an independent mark.

Each answer shows the steps, then the **result**.

2.1

week 9: **290**

week 8: forecast 260, error $290 - 260 = +$**30**

2.2

$$\frac{270 + 260 + 290}{3}$$

$=$ **273.3**

2.3

$250 + 0.3 \times (270 - 250)$

$=$ **256**

the forecast would follow recent changes faster, but also chase random noise

2.4

$$\frac{10 + 20 + 30 + 10}{4}$$

$=$ **17.5**

3.1

(a) $20, -10, 30, 10, 20, -10, 30$; $\frac{130}{7} =$ **18.6**

(b) errors $30, 26.7, 36.7, 6.7, 30$; MAD **26.0**

(c) naive: sales are rising, so the average of past weeks is always too low

3.2

(a) $187.9 + 12.1 \times 9 \approx$ **297**; range **287** to **307**

(b) $297 \times 1.15 \approx$ **342**

(c) beside the base forecast, with the reason, the size and who decided; then the actual can show whether the judgement helped, which improves next year's forecast

3.3

7–8: a moving average suits bread's flat demand (K); on sandwiches it will lag behind the trend every week and under-order (An); for the vegan box there are no past weeks to average, so judgement or a similar product must be used (App); one method is simpler, and staff mistakes also cost money (An); MAD on the same weeks would show which method is better for each product (Ev); recommendation with a condition, e.g. use the moving average for bread, a trend method for sandwiches, written judgement for the new box, and review each with MAD monthly (Ev). **4–6**: sound analysis with limited use of the case or a weak judgement. **1–3**: relevant points, mostly descriptive.

exercises.lol exercises.com.cn