# **HINTS & COMMON PITFALLS**

# <u>IA02</u>

#### 1. Variance & Standard Deviation

- a) **Variance cannot be negative.** If you see "Variance = -2" in a question option, that's automatically invalid.
- b) Standard deviation = square root of variance → always reported as a **positive** number.

#### 2. Scales of Measurement

- a) **Nominal** = categories without order (e.g., Zip code, Gender).
- b) **Ordinal** = ordered categories (e.g., Top 10%, Middle 50%, Bottom 40%).

#### c) Interval Scale

- Has meaningful differences (you can add/subtract).
- No true zero → zero does not mean "nothing."
- Example:
  - o Temperature  ${}^{\circ}C \rightarrow o{}^{\circ}C$  doesn't mean "no temperature," it's just a point on the scale.
  - o Year built → o AD doesn't mean "no year," it's just where the calendar starts.

### d) Ratio Scale

- Has meaningful differences (you can add/subtract).
- Has a true zero → zero means nothing exists.
- You can also make ratios (twice as much, half as much).
- Example:
- Age  $\rightarrow$  o years = not alive.
- SQFT  $\rightarrow$  o sqft = no space.
- Price  $\rightarrow$  \$0 = free.
- Bath count  $\rightarrow$  0 = no bathroom.

### 3. Using JASP & Excel

- a) Always **copy values exactly** from JASP outputs. Do not round manually unless instructions say so.
- b) In Excel/Google Sheets: **round to 3 decimal places** consistently.
- c) When asked for smallest or largest Z-score  $\rightarrow$  use may use inbuilt function in JASP, then check min/max.

d) When asked about number of records with  $Z > 3 \rightarrow$  apply a filter/condition (=COUNTIF (range,">3")).

## 4. General Tips

- a) Read carefully whether the question asks for **probability**, **proportion**, or **percentage**.
- b) Double-check that your answers match the **requested format** (decimal, 3 decimals, no % sign).
- c) Watch out for **trick options** (e.g., negative variance, SD with  $\pm$  sign).
- d) For transformations (like adding 5 to every value): **variance doesn't change** (since spread is the same).