Solutions

2.1

- $P(\geq 1) = 1 - 0.95^{14}$.
- $1 - 0.488 = \mathbf{0.51}$ – a coin flip.
- Gate 1: 14 tests (multiple comparisons).
- Gate 3: the store was selected after looking (selection on the result).

2.2

- Optional stopping inflates the false-positive rate well above the nominal 5% – each peek is another ticket.
- An honest rule fixes n (or a sequential method) in advance and stops only as declared.

2.3

- $SE = 9{,}000/\sqrt{30} = 1{,}643$.
- Band: $84{,}300 \pm 2 \times 1{,}643 = [\mathbf{81{,}000},\ \mathbf{87{,}600}]$.
- Use: plan cash for the band (stress the lower end), and revisit calibration – did past 95% bands hold 95% of the time?

2.4

- (a) How many tests?
- (b) When did you stop?
- (c) Who was selected out?
- (d) Where is the band?

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