

Competition Corner: Evidence-Quality Reasoning

Optional Extension | g10_u09_w34

Use only the fictional data card: L = 12.1, 12.3, 12.2 and H = 15.0, 15.2, 14.8, reported to 0.1 unit with assigned mean uncertainty ± 0.05 . This is not a data-collection protocol, safety assessment, or real-world conclusion.

1. Calculate the midpoint of the two means, $(12.2 + 15.0)/2$, and explain why that midpoint is only a derived number, not a decision threshold.
2. Compare the H and L ranges as a ratio, $0.4/0.2$. State only what it says about this printed spread.
3. A student says, "The means differ by 2.8, so uncertainty is irrelevant." Identify the evidence-quality error.
4. Write the narrowest valid statement about repeatability, accuracy, and causation using this card.

Key. 1. 13.6 index units; the card supplies no criterion that makes it a decision threshold. 2. 2; H's printed range is twice L's printed range. 3. Reporting uncertainty and trial spread still limit interpretation; the card has only three fictional entries. 4. Repeated entries permit a limited spread comparison; no accepted value supports accuracy, and fictional paper data do not establish causation.