Guide to: Error intervals

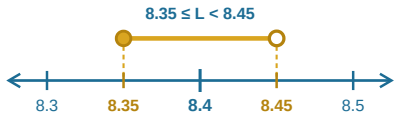
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Explanation:

An error interval shows the range of possible actual values of a number before it was rounded or truncated. For a rounded measurement, find half of the degree of accuracy and subtract it for the lower bound, then add it for the upper bound.

For a value ***x***, the error interval is always written using the inequalities **LB ≤ *x* < UB**. If a number is **truncated** (chopped off without rounding), the lower bound is the truncated number itself and the upper bound is the next unit up.

Example 1: A length, *L* cm, is **8.4 cm** rounded to **1 d.p.** Write down the error interval for *L*.



Half of 0.1 cm = **0.05 cm** → LB = 8.4 − 0.05 = **8.35**,
UB = 8.4 + 0.05 = **8.45**
Answer: 8.35 ≤ *L* < 8.45

Example 2: A number, *y*, is **truncated** to 2 decimal places to give **4.72**. Write down the error interval for *y*.

Solution:

Truncated at 2 d.p. means digits after 0.01s were cut off.
Smallest possible value = **4.72**
Upper bound (next hundredth up) = 4.72 + 0.01 = **4.73**
Answer: 4.72 ≤ *y* < 4.73

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