7 Estimating a mean – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English	**Write it 3 times** (English)
mean	

Recall

In an earlier sheet you estimated a **proportion** with a confidence interval. The same idea works for an **average**:

- A sample of test scores estimates the true average score.
- The estimate comes with a margin of error.

This sheet lines up estimating a mean. Each idea has a worked example.

New ideas

1 Estimating a mean

To estimate a population **mean** , take a sample, find its average, and attach a margin of error to give a confidence interval.

2 The interval

The confidence interval for a mean is sample mean ± margin of error.

Worked example. A sample of heights averages 170 cm with a margin of error of ±3 cm: the interval is 167 cm to 173 cm.

3 Interpretation

We are (say) 95% confident the true average lies in this range – the method captures it 95% of the time.

■ 4 Precision

A larger sample gives a **smaller** margin of error, so a narrower, more precise estimate of the mean.

Watch out: the confidence interval estimates the **population mean**, not the value of a single individual. Individuals vary far more widely than the average does.

Practice

Try these in order. The methods are all above.

2.1 State what you attach to a sample mean to make a confidence interval. [1]

2.2 A sample averages 50 with a margin of error of ± 4. State the confidence interval. [2]

2.3 A sample averages 200 with a margin of error of ± 15. State the interval. [2]

2.4 State what a larger sample does to the margin of error. [1]

2.5 State what the interval estimates – the population mean or a single individual. [1]