# Response to Short Answer Question

Cameron's approach of weighing the rock 20 times will likely yield a more precise estimate of the rock's true weight compared to Jordan's 5 measurements.

This is due to the standard error of the mean, which is calculated as:

$$SE = \frac{\sigma}{\sqrt{n}}$$

where σ is the standard deviation of the measurement process and n is the sample size.

With 20 measurements, Cameron's standard error will be:

$$SE\_{Cameron} = \frac{\sigma}{\sqrt{20}} = \frac{\sigma}{4.47}$$

While Jordan's standard error with 5 measurements will be:

$$SE\_{Jordan} = \frac{\sigma}{\sqrt{5}} = \frac{\sigma}{2.24}$$

Since Cameron's denominator is larger, her standard error will be smaller, resulting in a narrower confidence interval around the estimate. The central limit theorem tells us that as sample size increases, the sampling distribution of the mean approaches normality and becomes more concentrated around the true parameter value.

Assuming the measurement process has the same inherent variability for both students and no systematic bias exists in either student's technique, Cameron's estimate will likely be closer to the true weight due to the larger sample size reducing the impact of random measurement error.