# Response to Multiple Choice Question

B. A small p-value

## Explanation

In hypothesis testing, the p-value represents the probability of obtaining results at least as extreme as those observed, assuming that the null hypothesis is true.

When a researcher is hoping to show statistical significance, they want a small p-value (typically less than the predetermined significance level α, commonly 0.05 or 0.01). A small p-value indicates strong evidence against the null hypothesis, suggesting that the observed effect is unlikely to have occurred by chance alone.

If the p-value is large (e.g., greater than 0.05), we fail to reject the null hypothesis, meaning we don't have sufficient evidence to claim statistical significance.

Option C is incorrect because the magnitude of the p-value directly determines statistical significance - it's the primary criterion used to decide whether to reject the null hypothesis.

Therefore, a graduate student hoping to demonstrate statistical significance would want to obtain a small p-value (option B).