

## LEARNING CHECK

*Consider the following research situation:*

I want to know whether grades on a recent class exam are better than they have been for the exam on the same information that I've given the past 10 years. The mean for the recent class exam was 90% for a class of 36 students. Historically, the mean for this exam has been 80% with a standard deviation of 15%.

1. State the null and research hypotheses (directional), both symbolically and in plain English.

A:

$$H_0: \mu_{\text{recent class}} = \mu_{\text{historical mean}}$$

$$H_1: \mu_{\text{recent class}} > \mu_{\text{historical mean}}$$

In plain English, the null hypothesis states that there is no difference between my recent class and the historical mean on this exam. The directional research hypothesis states that my recent class performed better than the historical mean on this exam.

2. To test my hypothesis, I use an alpha level of .03. What is my critical value for this test?

A: There is no precise z critical value for an alpha of .03, but +1.89 would be the closest critical value for this alpha level.