

Understanding Scale Scores

What is a scale?

A scale is an arbitrarily established set of numbers used for measurement according to a rate or standard. Let's look at a familiar example. We all know we measure temperature with a thermometer. If the thermometer indicates 38 degrees, we do not have sufficient information to interpret the reading. Our immediate question is whether the thermometer is set in Celsius, Fahrenheit, or another scale. By learning that the thermometer is Celsius, we know the scale between water freezing and water boiling is 0-100. Had the thermometer been set for Fahrenheit, we know the 32 to 212 scale was used. In testing, such as for the CPIM and CIRM programs, a scale is a way to report test performance.

Why use a scale?

As a score-reporting technique, a scale provides a standard range for test takers and permits direct comparisons of results from one administration of the examination to another. (An administration is the combination of the specific test and date it was taken.) Scores on different tests that use the same scale may also be compared. Such comparisons would be difficult to make using raw scores (number correct), because the tests may have different numbers of questions and the number of correct answers required to pass may be different.

First, a single scale is used to provide candidates with a convenient, single referent for all the modules in the program. For example, let's say the minimum passing score on a TEST A is 300 on the scale of 265 to 330 for each test. The minimum passing score on TEST B is 200 on the scale of 160 to 240 for each test. The minimum raw score, the value associated with correct responses, required to pass the TEST A test is not necessarily the same as the minimum raw score required for the TEST B test, because some tests are more difficult than others. However, passing on each of these two tests is reported as the same number. *It is very important to note that the content and the difficulty of each of these modules are independent of each other.* For example, while the most difficult question on the TEST A test may require several levels of thought and multiple calculations, the most difficult question on the TEST B test may only require a simple calculation.

Second, it is important to report scores in such a way that teachers can compare students' level of success from one administration of the examination to another. Teachers want to know how students performed the second time relative to the first. If students do poorly the first time, teachers want to know by how much. If they do poorly a second time, teachers need to be encouraged by at least seeing an improvement in students' scores. A reporting scale that remains constant across test forms enables teachers to make these comparisons. Remember, some administrations (or "forms") of the same test, are slightly more or less difficult than other administrations. The scale adjusts for the difference in difficulty to provide the same standard score for the same level of performance.