

PRECISION

INTRODUCTION AND PURPOSE

By the end of this module, you should be able to describe what precision means for the purpose of these modules and make an imprecise item more precise.

KEY CONCEPTS

Precision

For the purpose of this series of modules, precision means that assessments and items are accurate and clear. A *precise* assessment measures students' knowledge and skills, not their misinterpretations or lack of unrelated background knowledge.¹

Specifically:

- All parts of a precise assessment or an item are formatted in a logical order.
- They do not contain typos or factual errors.
- They do contain accurate and clear instructions so that students understand where and how to respond.
- They include all of the information that students need to demonstrate their knowledge and skills.²

For example, in the module about bias, we describe an assessment item that is not biased but that still measures something it does not intend to measure.

*If one card is taken at random from a deck of playing cards, what is the probability that the card will be an ace?*³

The item omits key pieces of information that students need to know in order to select the correct answer: the number of total cards in a deck of cards and the number of aces in a deck of cards.

We can make the item clearer if we add the missing facts to the item: "There are 4 aces in a deck of 52 playing cards."

How to Design Precise Assessment Items

How could you revise this item to make it clearer?

*Marcus has 34 marbles. He puts an equal number of marbles into 4 bags. For "1a"–"1d," choose Yes or No to indicate whether each number sentence could be used to find the number of marbles that Marcus puts in each bag.*⁴

- a. 36×4
- b. $36 \div 4$
- c. $36 \times [\text{blank}] = 36$
- d. $36 \div [\text{blank}] = 36$

The first sentence contains a typo; that is, it reads 34 marbles instead of 36. The prompt references choices "1a" through "1d," but the answer choices do not include the number "1," which may cause confusion. The choices also do not make clear where they are missing information; that is, choices "a" and "b" are missing information after the equal sign, and choices "c" and "d" are missing information before the equal sign.

Although precision may not be as difficult a concept to grasp as other elements, such as rigor and alignment, it is every bit as important. Do not underestimate the power of formatting to confuse or provide clarity. Sometimes a simple formatting change can make the difference between an assessment item that measures what it intends to measure and one that does not.

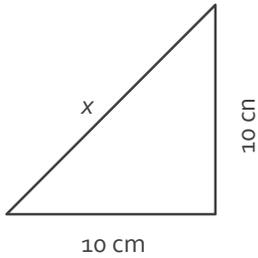
We can also apply the element of precision when we select items. Be mindful of the format of items from banks of items or curriculum developers because some published materials are not as precise as they *could* be.

CHECK FOR UNDERSTANDING

Assessment Item

1. How might you improve the accuracy and clarity of this assessment item?

Find x .



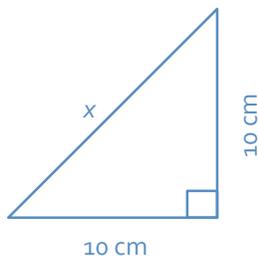
Answers

1. How might you improve the accuracy and clarity of this assessment item?

I could improve this assessment item by:

- *fixing the typo of 10cn to read 10cm;*
- *placing the square symbol that indicates a right angle in the lower right-hand angle; and*
- *revising the item prompt so that it reads, "What is the value of x in centimeters? Show your work in the space provided."*

What is the value of x in cm? Show your work in the space provided.



¹ Kansas State Department of Education, "Assessment Literacy Project"; Ohio Department of Education, "Assessment Literacy: Identifying and Developing Valid and Reliable Assessments" (2013); Relay Graduate School of Education, *Designing and Evaluating Assessments* (2014); and Rhode Island Department of Education, "Deeping Assessment Literacy."

² Relay Graduate School of Education, *Rules for Constructed Response Item Design* (2013); and Relay Graduate School of Education, *Rules for Multiple Choice Item Design* (2013).

³ New Jersey Department of Education. *SGO 2.0—From Compliance to Quality* (2014).

⁴ Hawaii Department of Education, "Grade 3 Mathematics Sample SR Item C1 T1."