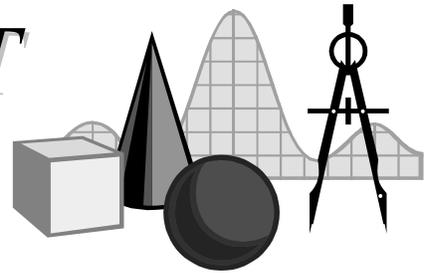


# TAKE IT TO THE MAT

A NEWSLETTER ADDRESSING THE FINER POINTS OF MATHEMATICS INSTRUCTION

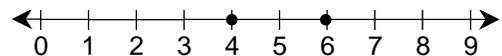
Math Audit Team  
Regional Professional Development Program  
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Some have asserted that the English language is a difficult one to learn. Others claim that learning the language of mathematics is equally as arduous. For these groups, putting the languages together would be a recipe for disaster. Nothing could be further from the truth. It just takes diligence and patience. In this issue of *Take It to the MAT* we will look at two frequently used, but often confused, phrases.

We examine first the expression *is less than*. That seems simple enough. When comparing two unequal numbers, one *is less than* the other. Four *is less than* six. Two and three tenths *is less than* two and thirty-one hundredths. We use the symbol “ $<$ ” to signify *is less than*, so each of those previous statements can be written as  $4 < 6$  and  $2.3 < 2.31$ .

Technically speaking, *is less than* is known as an *inequality relation*. When two numbers are graphed (plotted) on a number line, the one on the left *is less than* the one on the right—always.



Consider second the phrase *less than*. Not *is less than*, but *less than*. Read the following carefully: four less than six. What does your mind conjure up? Does it look like that number line above, or the sentence  $4 < 6$ ? If so, read it again: four *less than* six, not four *is less than* six.

*Less than* implies subtraction. Four *less than* six is two, or  $6 - 4 = 2$ . *Is less than* describes a relationship between two numbers. *Less than* describes a removal process or movement to the left on the number line. Consider the question, “What is one less than five?” This is practiced as early as first grade or kindergarten, and the *Mountain Math* review program uses this frequently.

We have detailed two important terms: *less than* and *is less than*. Similar interpretations can be made for *greater than* and *is greater than*.

Ok, let’s have a quiz. Write the expression or inequality in symbols for each of the following statements. Answers are given below.

- (1) Five and six hundredths is less than twenty-two.
- (2) One hundred sixty less than two hundred five.
- (3) Thirty-nine and one third is greater than twelve.
- (4) Ten greater than three tenths.

*Less than*, and *is less than* are terms that students need to recognize. They seem straightforward enough, but even high school students confuse them from time to time. With practice, students can achieve fluency in both languages—English and mathematics—and not hesitate when translating between them.

(1)  $5.06 < 22$  (2)  $205 - 160$  (3)  $39\frac{1}{3} > 12$  (4)  $10 > \frac{3}{10}$