

# Lesson 91

## Objective

Students will solve equations with embedded parentheses.

## Preparation

No special preparation is required.

## Lesson Plan

Students have learned the commutative properties of addition and multiplication. Discuss the fact that the order in which you perform operations can make a difference in the answer.

Parentheses indicate the order we use in performing operations. Those within a set of parentheses get performed before those outside. The same thing happens with embedded or nested sets of parentheses.

Students may want to use a highlighter or circle the innermost part of the problem so they can easily see the sets of parentheses and the order they need to follow.

Once they get the answer to the innermost calculation, they can rewrite the problem with the answer in place and without the innermost parentheses.

Some problems and complex equations have multiple sets of inner parentheses. Ask if it matters in which order those inner sets are solved? (No, as long as you do all the work at the inner levels before doing the non-enclosed operations.)

Help students identify each part of these expressions in mathematical terms (sum, term, product, factor, etc.). Point out that in problem 1 the expression  $(2 \times 4)$  can

be seen as both a single entity and also as a *product* of two *terms*. (*Product* was introduced in Lesson 6.) However, since  $(2 \times 4)$  is added to  $(8 - 2)$ , it can also be thought of as an *addend*. (*Addend* was first introduced in Grade 4.)

Explain that the second line of the equation shows  $(6 + 8) - 5$ . Then explain that  $(6 + 8)$  can be described as both a single equation and also as the *sum* of two terms, 6 and 8.

Have your students describe the equations in #3 and #4 in similar ways, helping them define the terms *quotient* (from Lesson 6), *product*, and *sum*.

## Stretch 91

Draw the chart below across the top of the board.

|     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|
| Jan | Feb | Mar | Apr | May | Jun |
| 31  | 28  | 31  | 30  | 31  | 30  |

|     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|
| Jul | Aug | Sep | Oct | Nov | Dec |
| 31  | 31  | 30  | 31  | 30  | 31  |

Explain that the numbers under each month are the days in the months that year. Dima's birthday is the 89th day of the year. What is the date of her birthday?

Answer: March 30th  
 $31 + 28 + 31 = 90$ ,  $90 - 89 = 1$ ,  
 March 31 - 1 = March 30