

## Activity 4

**Concepts/Skills:**

Order of operations, reasoning

**Calculator:**

TI-30Xa SE or TI-34

**Remember Me?****Objectives:**

Students use memory keys to complete computations involving order of operations.

***Getting Students Involved***

Talk about the dangers of trying to use a tool without knowing its proper use.

- ◆ Why don't we allow people to drive without a driver's license? *People who don't know how to drive would be dangerous to other people.*

***Making Mathematical Connections***

Remind students that in order to avoid ambiguity, mathematicians have developed an agreed-upon order of operations.

- ◆ What is the order of operations? What do we do first? Second? Third? *First, complete exponentiation, from left to right. Second, complete multiplications and divisions, from left to right. Third, complete additions and subtractions, from left to right.*
- ◆ If there are two multiplications in an expression, which one do we do first? *The left-most one.*

You may want to review the use of  $\boxed{\text{STO}}$ ,  $\boxed{\text{RCL}}$ ,  $\boxed{1/x}$ , and parentheses keys.

- ▣ Transparency Masters **B: Store and Recall Values**  
**C: Use Parentheses**  
**D: Find a Reciprocal**

***Carrying Out the Investigation***

If students cannot think of a second (or third) way to complete each computation, ask them how they could break the computation into parts.

- ◆ How could you get the calculator to remember each part? *Use the  $\boxed{\text{STO}}$  capability.*

***Making Sense of What Happened***

Use the transparency at the end of this activity to review solutions to the first problem.

Ask students to share their solutions to the other problems.

Have students write their key sequences on the overhead so that all students can see them. Discuss how parentheses and the order of operations are evident in each key sequence.

For example, in Exercise 1, help students explain how they dealt with  $40 \times 60$  and how they dealt with  $20 + 80$ .

***Continuing the Investigation***

Ask students to make different examples similar to the ones on the worksheet. The only requirement is that students must be able to complete their computations in more than one way.

***Solutions***

1. 24
2. 0.0625
3. 4
4. 2

**Note:** To compute the solutions below, students might have used the  $\boxed{x^2}$ ,  $\boxed{x^3}$ , or  $\boxed{y^x}$  keys, or they might have calculated the products by using multiplication.

5. 16
6. 0.015459941
7. -30.47178683
8. 0.00009196