

Algebra/Geometry Institute Summer 2003

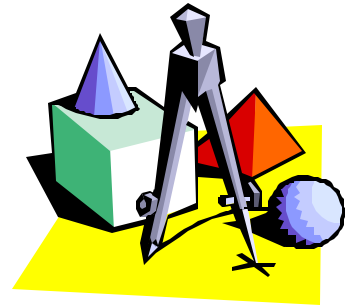
Lesson Plan III

Faculty Name: Carolyn Corey

School: None

City: Camden

Grade Level: 9-12 Pre-algebra



1. Teaching objective(s): Evaluate expressions using order of operations.
2. Instructional Activities:
 - a. Teacher will review basic rules of order of operations in numerical problems and problems using parenthesis.
 - b. Good web sites for these activities are listed in materials and resources.
3. Materials and Resources:
 - a. Materials needed will be the student notes, pencils, calculators, overhead projector and supplies, and chalk and chalkboard.
 - b. <http://www.sosmath.com/algebra/fraction/frac3/frac39/frac39211/frac39211.html>
 - c. http://www.sosmath.com/books/books_today.html
4. **Assessment:** Students will be given a worksheet in which they will simplify numerical problems using the basic order of operations.

Basic Rule of Order of Operations in Solving Basic Math Problems

Rule. Expressions in parenthesis are treated as one number and must be calculated first.

Example: Calculate $5 + 6 \times (8 - 10) + (6 \times 3 + 12)$.

Solution: Because there is parenthesis in the problem. Work from left to right. The parenthesis $(8 - 10)$ can be simplified to (-2) . The problem can be rewritten $5 + 6(-2) + (6 \times 3 + 12)$. The parenthesis $(6 \times 3 + 12)$ can be rewritten as $(18 + 12)$ then (30) .

Now you can rewrite the problem as $5 + 6(-2) + 30$.
 $5 + (-12) + 30 = 23$.

Example: Calculating fractions working from left to right; $(4 \times 6 - 3) + (? + \frac{1}{2} + \frac{3}{4})$.

Solution: The parenthesis $(4 \times 6 - 3)$ contains multiplication and subtraction in which the multiplication is worked first ($24 - 3 = 21$).

Work the second parenthesis $(? + \frac{1}{2} + \frac{3}{4})$. Find a common denominator

12, the parenthesis becomes $\left(\frac{4}{12} + \frac{6}{12} + \frac{9}{12}\right)$, with a little addition

becomes $\left(\frac{19}{12}\right)$. Simplifying: $21 + 1\frac{7}{12} = 22\frac{7}{12}$.