

ORDER OF OPERATIONS

Many students have been taught the sentence, “Please Excuse My Dear Aunt Sally,” as a way of learning the order of operations. This works for all real numbers.

Please Excuse My Dear Aunt Sally.

- P Parentheses** Do all calculations within parentheses (), brackets [], or braces { } before operations outside of the symbol. When these grouping symbols occur within other grouping symbols, computations in the innermost ones must be performed first.
- E Exponents** Evaluate all exponential expressions and square roots.
- M Multiplication**
Perform multiplication and division in order from left to right.
- D Division**
- A Addition**
Perform addition and subtraction in order from left to right.
- S Subtraction**

One of the most common pitfalls is for the student to always perform multiplication before division. Operations are performed by whichever comes first from left to right.

Example: $18 \div 2 \cdot 3$

Correct Method

$$18 \div 2 \cdot 3$$

$$9 \cdot 3$$

$$27$$

Incorrect Method

$$18 \div 2 \cdot 3$$

$$18 \div 6$$

$$3$$

The correct order does affect the final answer.