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| ***Order of Operations***  **Handout** | **Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |

**Objective: To practice using order of operations to simplify expressions**

**Segment 1**:

To evaluate expressions consistently, we follow the accepted order of operations. We agree to do the operations in this order:

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| The Order of Operations Agreement  Step 1: Perform operations inside grouping symbols: (),{},[],absolute value, fraction bar  Step 2: Simplify exponents  Step 3: Do multiplication and division as they occur from left to right  Step 4: Do addition and subtraction as they occur from left to right |

Practice: Fill in the operation that begins with each letter.

Parentheses Exponents Multiplication

Division Addition Subtraction

Note: “**P**lease **E**xcuse **M**y **D**ear **A**unt **S**ally” is one phrase people use to remember the order of operations.

Practice: Fill in the blanks and answer the question.

According to the order of operation, which phrase describes 3 × 4 + 5? Ans: (a)

1. 5 more than 3 times 4 (b) 3 times the sum of 4 and 5

**Segment 2**: Evaluate exponential expressions.

1.  (b)  (c) (d) 

Ans: 25 Ans: -25 Ans: -8 Ans:

**Segment 3**: Evaluate absolute value expressions.

1.  (b)  (c) (d) 

Ans: 5.2 Ans: Ans: -17 Ans: 23

**Segment 4**: Evaluating expressions with one grouping symbol.

Practice: Simplify.

1. (b)

Ans: -15 Ans: 13

**Segment 5**: Evaluating expressions with grouping symbols inside grouping symbols and with fractions.

Note: Perform operations inside the innermost grouping symbol first.

Practice: Simplify.

1. (b)

Ans: -1 Ans:

(c) 

Answer: Undefined

**SELF-REFLECTION ACTIVITY**

- Which segment of the order of operations was most challenging for you?

- What steps are you going to take to learn this subject?