

**Lesson #3 A: Using Order of Operations to Simplify Numeric Expressions and Simplifying Basic Absolute Value and Radical Expressions (Reference: Lesson #4, #7, #9 & #13 in book)****Problem**

1. Simplify each of the following numeric expressions by using Order of Operations.

1.  $4 \cdot 3 - [6 - (5 + 9)]$

2.  $25 - (-28) - [57 - (-86 - 19)]$

3.  $[5 \cdot (4 + 2)^2] + \frac{4 \cdot 5}{2}$

4.  $\frac{8 + 2(8^2 - 4)}{4 \cdot 3 - 10}$

5.  $\frac{6(5 + 1) - 9(1 + 1)}{5(8 - 4) - 2^3}$

6.  $-3 + |-5| - 7 - 4 - |(-2) + |1 + (-3)||$

7. Compare the expressions and use  $<$ ,  $>$ , or  $=$  to create a true numeric expression.

7.  $[5 \cdot (4 + 2)^2] + \frac{4 \cdot 5}{2} \bigcirc 5 + [6 \cdot (2^3 + 4)]$

8.  $3 + 5 \cdot [(9 - 3)^2 - 6] \bigcirc 4(1 + 2)^2 \div 6 + \frac{8 \cdot 3}{2}$

9. Simplify and Evaluate each of the following Absolute Value and Radical expressions.

9.  $|-13|$

10.  $-|17 + 4 - (66 - 18) \div 3|$

11.  $-\left|\frac{1}{2} - \frac{2}{3}\right|$

12.  $\sqrt{28}$

13.  $\sqrt{208}$

14.  $\sqrt{275}$

Problem

1. Simplify each of the following numeric expressions by using Order of Operations.

1.  $4 \cdot 3 - [6 - (2 + 9)]$

2.  $22 - (-28) - [17 - (-86 - 19)]$

3.  $\left[ 2 \cdot (4 + 2) \right] + \frac{4 \cdot 2}{2}$

4.  $\frac{8 + 2(8^2 - 4)}{4 \cdot 3 - 10}$

5.  $\frac{6(2 + 1) - 9(1 + 1)}{2(8 - 4) - 2^2}$

6.  $-3 + |-2| - 7 - 4 - |(-2) + 1| + (-3)$

7. Compare the expressions and use  $<$ ,  $>$ , or  $=$  to create a true numeric expression.

a.  $\left[ 2 \cdot (4 + 2) \right] + \frac{4 \cdot 2}{2} \circ 2 + [6 \cdot (2^2 + 4)]$

b.  $3 + 2 \cdot [(9 - 2) - 6] \circ 4(1 + 2)^2 + 6 + \frac{8 \cdot 2}{2}$

8. Simplify and evaluate each of the following Absolute Value and Radical expressions.

9.  $| -13 |$

10.  $-|17 + 4 - (66 - 18) + 7|$

11.  $-\left| \frac{1}{2} - \frac{3}{4} \right|$

12.  $\sqrt{32}$