

SALLY TEACHES ORDER OF OPERATIONS

As you move into the higher levels of pre-algebra and eventually algebra, you'll begin to encounter equations that are longer or have multiple functions.

For example: $9^2 + (8 \times 1) - (6 \div 3) \times 3^4 =$

In order to solve a longer equation, you have to know what order to work on the problem. There is an easy trick that will help you work these problems. It is a mnemonic called PEMDAS. PEMDAS stands for "Please Excuse My Dear Aunt Sally". Each letter stands for an operation and you go in order through PEMDAS to solve the equation. Always work from left to right.

P – Parenthesis (solve anything inside parenthesis first)

E – Exponents (solve powers next)

M – Multiplication

D - Division

A - Addition

S – Subtraction

Go out of order and the answer may be incorrect. Let's solve that equation above:

$$9^2 + (8 \times 1) - (6 \div 3) \times 3^4 =$$

First, solve inside the parenthesis. (8×1) and also solve for $(6 \div 3)$. The new equation would look like this:

$$9^2 + (8) - (2) \times 3^4 =$$

Next, solve exponents. So, solve 9^2 and also 3^4 . The equation now looks like this:

$$81 + (8) - (2) \times 81 =$$

Then multiplication, so 2×81 and finally addition and subtraction.

$$81 + 8 - (162) =$$

$$89 - 162 = -73$$

Here are some additional problems you can work:

$$1) 4^3 - 2^2 (8 \div 2) + (3+9) + 5 =$$

$$2) 9^2 - (8 \times 2) + (3 - 1) \div 3 =$$

$$3) 9^4 \times 3^2 + (0 + 4) + (9 \div 3) =$$

$$4) 2^3 + (7 - 2) \times (1 \times 0) =$$



Answer Key:

$$1) 4^3 - 2^2 + (8 \div 2) + (3+9) + 5 =$$

$$4^3 - 2^2 + (4) + (12) + 5 =$$

$$64 - 4 + (4) + (12) + 5 =$$

$$64 - 4 + 4 + 12 + 5 =$$

$$64 - 25 = 39$$

$$2) 9^2 - (8 \times 2) + (4 - 1) \div 3 =$$

$$9^2 - (16) + (3) \div 3 =$$

$$81 - (16) + (3) \div 3 =$$

$$81 - 16 + 1 =$$

$$81 - 17 = 64$$

$$3) 9^4 \times 3^2 + (0 + 4) + (9 \div 3) =$$

$$9^4 \times 3^2 + (4) + (3) =$$

$$6561 \times 9 + (4) + (3) =$$

$$59,049 + 4 + 3 = 59,056$$

$$4) 2^3 + (7 - 2) \times (1 \times 0) =$$

$$2^3 + (5) \times (0) =$$

$$8 + (5) \times (0) =$$

$$8 + 0 = 8$$