Order of Operations

Objectives: I can solve problems using order of operations.

Jordan solved the problem 5 + 4 * 2 and got the answer of 18. David solved the same problem and got 13. Can both be correct? Is there only one correct order to perform operations? Who is correct?

Don't forget the different symbols for multiplication:

5*2 5(2) 5x2 5˙2

Add (5 + 4) * 2
Multiply 9 * 2
18
Jordan ⊗
(Sorry! Try again!)

5 + (4 * 2) ← Multiply
5 + 8 ← ADD
13
David ✓ CORRECT

Let's use this acronym to help us remember the order of operations…

1 **P**lease 2 **E**xcuse 3 **M**y **D**ear 4 **A**unt **S**ally

P (Level 1) Parentheses / Brackets / Fraction Bar [GROUPS] like #5

E (Level 2) Exponents

M & D (Level 3) Multiply and/or Divide from left to right see #2

A & S (Level 4) Add and/or Subtract from left to right

Practice P E MD AS

Steps must be shown so that each line of work is equal to the line above.

1. 5 * 10 − 6 * 2 M
   50 − 12 S
   38

2. 24 ÷ 6 * 2 MD
   4 * 2 M
   8

3. 3 + 5(7 − 5) P
   3 + 5(2) M
   3 + 10 A
   13

4. 18 − 5 * 3 M
   18 − 15 S
   3

5. $\frac{9 + 7 * 5}{4}$ P M
   $\frac{9 + 35}{4}$ A
   $\frac{44}{4}$ D **11**

6. 2 [9 (6 − 4)] + 4 P S
   2[9(2)] + 4 M
   2(18) + 4 M
   36 + 4 A
   40

7. 30 − 2^3 E (2 · 2 · 2)
   30 − 8 S
   22

8. 3(14 − 8)^2 P S
   3(6)^2 E (6 · 6)
   3(36) M
   108

9. 10 * 3^4 E (3 · 3 · 3 · 3 → 9 · 9)
   10 * 81 M
   810