

## SKILL #04

CODE: OP.3

# ORDER OF OPERATIONS {PEMDAS}



## Core Concept

When solving math problems with more than one operation, we need a clear rule to know what to do first, next, and last. That's where Order of Operations comes in!

Do not always go strictly top to bottom — Multiplication doesn't come before Division: they're done in the order they appear from left to right!

## THE GOLDEN RULE

Always follow PEMDAS from left to right

P – Parentheses ----> ( ), { }, [ ]

E – Exponents (powers, roots) ---->  $a^m$ ,  $\sqrt{a}$

MD – Multiplication & Division (left to right) ---->  $\times$ ,  $\div$

AS – Addition & Subtraction (left to right) ---->  $+$ ,  $-$

## STEP-BY-STEP EXAMPLE

$$3 + 2 \times (-1) - (2^2 - 6)$$

STEP 1: Parentheses -->  $2^2 - 6$  --> start with Exponent  $2^2 = 4$

$$\text{Then } 4 - 6 = -2.$$

$$\text{STEP 2: Multiplication} \rightarrow 3 + 2 \times (-1) - (-2) \rightarrow 2 \times (-1) = -2 \\ -(-2) = 2$$

$$\text{STEP 3: Addition and subtraction: } 3 - 2 + 2 = 1 + 2 = 3$$



## Real-Life Connection

Shopping: Calculate total cost with tax.

Cooking: Recipe scaling: Ingredients

Science: Formulas like Area =  $\pi \times r^2$

Gaming: Score calculations with multiplier

[MORE EXAMPLES](#)



## Common Mistakes to Avoid

Always Doing Multiplication Before Division

Always Doing Addition Before Subtraction

Ignoring Parentheses



Confusing Negative Signs:  $-2^2 = 4$  |  $-2^2 = -4$

## QUICK REFERENCE CHART

Step	Operation	Symbol	Direction
1	Parentheses	( ) [ ] { }	Inside out
2	Exponents	$^1, ^2, ^3, \sqrt{\phantom{x}}$	Left to right
3	Multiplication	$\times$	Left to right
4	Division	$\div, /, \frac{a}{b}$	Left to right
5	Addition	$+$	Left to right
6	Subtraction	$-$	Left to right



## Additional Resources



Video Tutorial



Extra worksheet



Game

