

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 $2^2 = 4$

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

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

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



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	$^, ^2, ^3, \sqrt{}$	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

Resource Links



Video Tutorial



Extra worksheet



Game