PEMDAS checklist and practice set

Use this sheet to evaluate an expression, then check your work. PEMDAS is the U.S. mnemonic for the order of operations. Multiplication is not done before division, and addition is not done before subtraction. Answers were computed in Python on 17 November 2026.

The four steps

Step	What it means	Watch for
1. Parentheses	Evaluate grouping symbols first, innermost first if they are nested.	Brackets and parentheses are the same idea.
2. Exponents	Then powers and roots.	-3^2 is -9; $(-3)^2$ is 9.
3. Multiply and divide	One step, left to right, in the order they appear.	$30 \div 5 \times 3 = 18$, not 2.
4. Add and subtract	One step, left to right, in the order they appear.	$8 - 3 + 2 = 7$, not 3.

PEMDAS, BODMAS, BIDMAS and BEDMAS name the same order. Brackets are parentheses. Orders or indices are exponents. After grouping and exponents, multiply or divide left to right, then add or subtract left to right.

Before you finish a problem

- Rewrite the expression after each step so you can see what is left.
- If a line could be read two ways, add parentheses. Write $(6 \div 2)(1+2)$ or $6 \div (2(1+2))$, not $6 \div 2(1+2)$.
- Check with an order of operations calculator. On StudySim, write multiplication explicitly: `2*(3+4)`, not `2(3+4)`.

Practice

Work each problem on paper. The answer key is on page 2.

1. $4 \times (5 + 3)$
2. 5×2^2
3. $2 + 5 \times 3$
4. $30 \div 5 \times 3$
5. $8 - 3 + 2$
6. $3 + 4^2 \times (8 - 5)$
7. $2 \times [3 + (4^2 - 6)]$
8. $7 - 4 \div 2 + 3^2$
9. $16 \div 4 \div 2$
10. `6 / 2 * (1 + 2)` (explicit operators)

StudySim: studysim.ai/calculator/arithmetic-calculator (order of operations / PEMDAS calculator). This checklist is a companion to the StudySim blog guide “PEMDAS: What It Is and How the Order of Operations Works.”

Answer key

Each answer was computed in Python using standard left-to-right precedence for multiply/divide and add/subtract.

#	Expression	Steps	Answer
1	$4 \times (5 + 3)$	$5 + 3 = 8$, then 4×8	32
2	5×2^2	$2^2 = 4$, then 5×4	20
3	$2 + 5 \times 3$	$5 \times 3 = 15$, then $2 + 15$	17
4	$30 \div 5 \times 3$	$30 \div 5 = 6$, then 6×3	18
5	$8 - 3 + 2$	$8 - 3 = 5$, then $5 + 2$	7
6	$3 + 4^2 \times (8 - 5)$	$8 - 5 = 3$; $4^2 = 16$; $16 \times 3 = 48$; $3 + 48$	51
7	$2 \times [3 + (4^2 - 6)]$	$4^2 = 16$; $16 - 6 = 10$; $3 + 10 = 13$; 2×13	26
8	$7 - 4 \div 2 + 3^2$	$3^2 = 9$; $4 \div 2 = 2$; $7 - 2 + 9$	14
9	$16 \div 4 \div 2$	$16 \div 4 = 4$, then $4 \div 2$. ($16 \div (4 \div 2)$ would be 8.)	2
10	6 / 2 * (1 + 2)	$1 + 2 = 3$; $6 / 2 = 3$; 3×3. This is the explicit-operator reading.	9

A note on 6 ÷ 2(1+2)

That form is ambiguous. Strict left-to-right multiplication and division gives 9. Treating implied multiplication as tighter gives 1. Write parentheses so the meaning is not in doubt.

StudySim blog draft companion, 17 November 2026. For personal study use.