

## ORDER OF OPERATIONS

Please  
Really Excuse  
My Dear (Dear Me!)  
Aunt Sally (Sally Ann?)

Simplify an arithmetic expression in the following order:

P     = = ⇒ Parentheses - simplify inside to get a single number

R, E   = = ⇒ Roots, Exponents

M, D   = = ⇒ Multiply, Divide or Divide, Multiply  
LEFT TO RIGHT

A, S   = = ⇒ Add, Subtract or Subtract, Add  
LEFT TO RIGHT

Example:  $(2^3 - 14 \div 7 \cdot 2) - \sqrt{4} \cdot 2 + 1$

Simplify the expression

Parentheses:

Inside  
parenthesis  
follow the  
order

Exponent:  $8 - 14 \div 7 \cdot 2$

Divide:  $8 - 2 \cdot 2$

Multiply:  $8 - 4$

Subtract:  $4$

A single number inside parentheses

$(4) - \sqrt{4} \cdot 2 + 1$

Root:  $4 - 2 \cdot 2 + 1$

Multiply:  $4 - 4 + 1$

Subtract:  $0 + 1$

Add:  $\underline{1}$

## ORDER OF OPERATIONS (no negative numbers)

1. $15 + 3 \cdot 2$	2. $24 + 6 \cdot 3$
3. $20 - 4 \cdot 3$	4. $17 - 2 \cdot 6$
5. $5 \cdot 9 - 16$	6. $8 \cdot 4 - 10$
7. $28 \div 4 - 3$	8. $42 \div 7 - 6$
9. $14 + \frac{24}{8}$	10. $32 + \frac{8}{2}$
11. $6 \cdot 5 + 8 \cdot 2$	12. $3 \cdot 4 + 9 \cdot 1$
13. $0 \div 6 + 4 \cdot 7$	14. $0 \div 8 + 7 \cdot 6$
15. $6 + 8 \div 2$	16. $6 + 9 \div 3$
17. $(6 + 8) \div 2$	18. $(6 + 9) \div 3$
19. $(6^2 - 4) \div 8$	20. $(7^2 - 7) \div 7$
21. $(3 + 5^2) \div 2$	22. $(13 + 6^2) \div 7$
23. $6^2 \cdot (10 - 8)$	24. $5^3 \div (10 + 15)$

25. $\frac{18+6}{2^4-4}$	26. $\frac{15+17}{5^2-3^2}$
27. $(2+5) \cdot (8-3)$	28. $(9-7) \cdot (12+18)$
29. $\frac{7(9-6)+3}{3^2-3}$	30. $\frac{5(12-7)-4}{5^2-2^3-10}$
31. $5 \div 0 + 24$	32. $18 - 7 \div 0$
33. $3^4 - [35 - (12 - 6)]$	34. $[40 - (8 - 2)] - 2^5$
35. $(7 \cdot 5) + [9 \div (3 \div 3)]$	36. $(18 \div 6) + [(3+5) \cdot 2]$
37. $8[4 + (6-1) \cdot 2] - 50 \cdot 2$	38. $35 \div [3^2 + (9-7) - 2^2] + 10 \cdot 3$
39. $7^2 - \{18 - [40 \div (4 \cdot 2) + 2] + 5^2\}$	40. $29 - \{5 + 3[8(10-8)] - 50\}$

**Answers:**

- |        |               |
|--------|---------------|
| 1) 21  | 21) 14        |
| 2) 42  | 22) 7         |
| 3) 8   | 23) 72        |
| 4) 5   | 24) 5         |
| 5) 29  | 25) 2         |
| 6) 22  | 26) 2         |
| 7) 4   | 27) 35        |
| 8) 0   | 28) 60        |
| 9) 17  | 29) 4         |
| 10) 36 | 30) 3         |
| 11) 46 | 31) undefined |
| 12) 21 | 32) undefined |
| 13) 28 | 33) 52        |
| 14) 42 | 34) 2         |
| 15) 10 | 35) 44        |
| 16) 9  | 36) 19        |
| 17) 7  | 37) 12        |
| 18) 5  | 38) 35        |
| 19) 4  | 39) 13        |
| 20) 6  | 40) 26        |