

Grade 5 · Numerical Expressions · Worksheet

Answer Key

Common Core 5.OA.A.1, 5.OA.A.2 · mathovore.fr

This answer key shows every step for the 24 numerical expression problems. Steps follow the same order each time: the innermost grouping symbols first, then multiplication and division, then addition and subtraction. Use it to find exactly where a mistake happened.

Grade 5 Common Core: 5.OA.A.1 · 5.OA.A.2

Problem 1: Add, then multiply

1. Inside the parentheses, add: $8+4=12$. The expression is now 12×3 .
2. Now multiply: $12\times 3=36$. The expression is now 36.

The value is 36.

Problem 2: Subtract a sum

1. Inside the parentheses, add: $12+6=18$. The expression is now $30-18$.
2. Now subtract: $30-18=12$. The expression is now 12.

The value is 12.

Problem 3: Subtract, then multiply

1. Inside the parentheses, subtract: $9-4=5$. The expression is now 5×5 .
2. Now multiply: $5\times 5=25$. The expression is now 25.

The value is 25.

Problem 4: Divide by a sum

1. Inside the parentheses, add: $2+4=6$. The expression is now $48\div 6$.
2. Now divide: $48\div 6=8$. The expression is now 8.

The value is 8.

Problem 5: Same numbers, different value

First expression:

1. Inside the parentheses, add: $6+3=9$. The expression is now 4×9 .
2. Now multiply: $4\times 9=36$. The expression is now 36.

The value is 36.

Second expression:

1. Now multiply: $4\times 6=24$. The expression is now $24+3$.
2. Now add: $24+3=27$. The expression is now 27.

The value is 27.

The parentheses make the 4 multiply the whole sum $6+3$. Without them, 4 multiplies only the 6. So $36\neq 27$.

Problem 6: Brackets around parentheses

1. Inside the parentheses, add: $2+3=5$. The expression is now $3\times[10-5]$.
2. Inside the brackets, subtract: $10-5=5$. The expression is now 3×5 .
3. Now multiply: $3\times 5=15$. The expression is now 15.

The value is 15.

Problem 7: Brackets, then divide

1. Inside the parentheses, multiply: $6\times 4=24$. The expression is now $[18+24]\div 7$.
2. Inside the brackets, add: $18+24=42$. The expression is now $42\div 7$.
3. Now divide: $42\div 7=6$. The expression is now 6.

The value is 6.

Problem 8: Subtract a bracket

1. Inside the parentheses, add: $2+3=5$. The expression is now $50-[4\times 5]$.
2. Inside the brackets, multiply: $4\times 5=20$. The expression is now $50-20$.
3. Now subtract: $50-20=30$. The expression is now 30.

The value is 30.

Problem 9: Braces, brackets, and parentheses

1. Inside the parentheses, add: $3+2=5$. The expression is now $\{40-[5\times 5]\}\div 3$.
2. Inside the brackets, multiply: $5\times 5=25$. The expression is now $\{40-25\}\div 3$.
3. Inside the braces, subtract: $40-25=15$. The expression is now $15\div 3$.
4. Now divide: $15\div 3=5$. The expression is now 5.

The value is 5.

1.	$\{40 - [5 \times (3 + 2)]\} \div 3$	start
2.	$\{40 - [5 \times 5]\} \div 3$	$3 + 2 = 5$
3.	$\{40 - 25\} \div 3$	$5 \times 5 = 25$
4.	$15 \div 3$	$40 - 25 = 15$
5.	5	$15 \div 3 = 5$

Each line shows one step. The new value is orange.

Problem 10: Multiply a braces group

1. Inside the parentheses, add: $3+2=5$. The expression is now $2 \times \{30 - [4 \times 5]\}$.
2. Inside the brackets, multiply: $4 \times 5 = 20$. The expression is now $2 \times \{30 - 20\}$.
3. Inside the braces, subtract: $30 - 20 = 10$. The expression is now 2×10 .
4. Now multiply: $2 \times 10 = 20$. The expression is now 20.

The value is 20.

Problem 11: Two groups multiplied

1. Inside the parentheses, add: $7+5=12$. The expression is now $12 \times (9-6)$.
2. Inside the parentheses, subtract: $9-6=3$. The expression is now 12×3 .
3. Now multiply: $12 \times 3 = 36$. The expression is now 36.

The value is 36.

Problem 12: Two groups subtracted

1. Inside the parentheses, divide: $36 \div 4 = 9$. The expression is now $9 - (2 \times 3)$.
2. Inside the parentheses, multiply: $2 \times 3 = 6$. The expression is now $9 - 6$.
3. Now subtract: $9 - 6 = 3$. The expression is now 3.

The value is 3.

Problem 13: Insert parentheses, sum first

Without parentheses, $4+6 \times 3$ equals 22, which is not 30. Try grouping the first operation: $(4+6) \times 3$.

1. Inside the parentheses, add: $4+6=10$. The expression is now 10×3 .
2. Now multiply: $10 \times 3 = 30$. The expression is now 30.

The value is 30.

Problem 14: Insert parentheses, difference first

Without parentheses, $20-8\div4$ equals 18, which is not 3. Try grouping the first operation: $(20-8)\div4$.

1. Inside the parentheses, subtract: $20-8=12$. The expression is now $12\div4$.
2. Now divide: $12\div4=3$. The expression is now 3.

The value is 3.

Problem 15: Add, then double

The sum of 8 and 7 is one chunk, so it goes in parentheses: $2\times(8+7)$.

Check: $2\times(8+7)=30$, because $8+7=15$ and $2\times15=30$.

$$\begin{array}{l} 8 + 7 \quad \boxed{8} \quad \boxed{7} = 15 \\ 2 \times (8 + 7) \quad \boxed{8} \quad \boxed{7} \quad \boxed{8} \quad \boxed{7} = 30 \end{array}$$

Two copies of $8+7$ make 30.

Problem 16: Subtract, then divide

Subtract first, so $20-6$ goes in parentheses. Then divide that result by 7: $(20-6)\div7$.

Check: $20-6=14$ and $14\div7=2$.

Problem 17: Triple a sum

"Triple" means multiply by 3. The sum of 12 and 9 is one chunk: $3\times(12+9)$.

Check: $12+9=21$ and $3\times21=63$.

Problem 18: Divide by a difference

The difference of 11 and 6 is one chunk, and 45 is divided by it: $45\div(11-6)$.

Check: $11-6=5$ and $45\div5=9$.

Problem 19: Compare without calculating

The sum $18+5$ is multiplied by 3, so $3\times(18+5)$ is **3 times as large as** $18+5$.

Check: $18+5=23$ and $3\times 23=69$.

$18 + 5$	18	5	one group
$3 \times (18 + 5)$	18	5	
	18	5	
	18	5	

Three copies of $18+5$ make 69.

Problem 20: Half of a sum

The sum $36+18$ is multiplied by $\frac{1}{2}$, so the expression is **half as large as** $36+18$.

Check: $36+18=54$ and half of 54 is 27.

Problem 21: Little League roster

Each team has $12+2$ people, and there are 6 teams: $6\times(12+2)$.

1. Inside the parentheses, add: $12+2=14$. The expression is now 6×14 .
2. Now multiply: $6\times 14=84$. The expression is now 84.

The value is 84.

The league has **84 people**.

Team 1	12	2	6 teams
Team 2	12	2	
Team 3	12	2	
Team 4	12	2	
Team 5	12	2	
Team 6	12	2	

6 teams of 14 people each make 84 people.

Problem 22: School store stickers

Packs cost 4×3 , the card adds 5, and the coupon subtracts 2: $4\times 3+5-2$.

1. Now multiply: $4\times 3=12$. The expression is now $12+5-2$.
2. Now add: $12+5=17$. The expression is now $17-2$.
3. Now subtract: $17-2=15$. The expression is now 15.

The value is 15.

Maya pays **\$15**.

Problem 23: Spending from \$50

The total spent is $3 \times 9 + 2 \times 6$. Subtract that whole amount from 50, so it goes in parentheses: $50 - (3 \times 9 + 2 \times 6)$.

1. Inside the parentheses, multiply: $3 \times 9 = 27$. The expression is now $50 - (27 + 2 \times 6)$.
2. Inside the parentheses, multiply: $2 \times 6 = 12$. The expression is now $50 - (27 + 12)$.
3. Inside the parentheses, add: $27 + 12 = 39$. The expression is now $50 - 39$.
4. Now subtract: $50 - 39 = 11$. The expression is now 11.

The value is 11.

Ethan has **\$11** left.

Problem 24: Find the mistake

Diego got 37 by doing $5 \times 8 = 40$ and then $40 - 3 = 37$. He ignored the parentheses and multiplied only the 8.

1. Inside the parentheses, subtract: $8 - 3 = 5$. The expression is now 5×5 .
2. Now multiply: $5 \times 5 = 25$. The expression is now 25.

The value is 25.

The correct value is **25**.