

Grade 5 - Numerical Expressions and Order of Operations - Answer Key

Common Core 5.OA.A.1, 5.OA.A.2 · maths-pdf.fr/en/

This answer key shows every step for the 20 order of operations problems. Each solution follows the same order: grouping symbols first, then multiplication and division from left to right, then addition and subtraction from left to right. Compare your steps, not only your final answers.

Grade 5 · Common Core State Standards: **5.OA.A.1, 5.OA.A.2**

Exercise 1 - Multiply before adding

Multiply first: $4 \times 3 = 12$.

Then add: $8 + 12 = 20$.

Answer: **20**

Exercise 2 - Divide before subtracting

Divide first: $6 \div 2 = 3$.

Then subtract: $20 - 3 = 17$.

Answer: **17**

Exercise 3 - Parentheses first

Parentheses first: $9 + 5 = 14$.

Then multiply: $14 \times 2 = 28$.

Answer: **28**

Exercise 4 - Dividing by a sum

Parentheses first: $2+4=6$.

Then divide: $36\div6=6$.

Answer: **6**

Exercise 5 - Two products

Multiply from left to right: $5\times6=30$ and $4\times3=12$.

Then subtract: $30-12=18$.

Answer: **18**

Exercise 6 - Left to right

Multiplication and division are on the same level, so go from left to right.

$48\div8=6$, then $6\times3=18$.

Answer: **18**

Exercise 7 - Parentheses, then multiply

Parentheses first: $12-4=8$.

Multiply: $8\times2=16$.

Add: $7+16=23$.

Answer: **23**

Exercise 8 - Brackets and parentheses

Innermost group: $8-3=5$, so the brackets hold $5+5=10$.

Multiply: $2\times10=20$.

Answer: **20**

Exercise 9 - Three layers of grouping

Innermost: $10 - 6 = 4$. Brackets: $2 + 4 = 6$.

Multiply: $3 \times 6 = 18$.

Subtract: $60 - 18 = 42$.

Answer: **42**

$$60 - 3 \times [2 + (10 - 6)]$$
$$60 - 3 \times [2 + 4]$$
$$60 - 3 \times 6$$

Steps for Exercise 9.

Exercise 10 - Braces

Parentheses: $3 \times 3 = 9$. Brackets: $18 \div 9 = 2$.

Braces: $4 + 2 = 6$.

Multiply: $6 \times 5 = 30$.

Answer: **30**

Exercise 11 - Parentheses then subtract

Parentheses: $14 + 6 = 20$.

Multiply: $3 \times 20 = 60$.

Subtract: $60 - 10 = 50$.

Answer: **50**

Exercise 12 - Compare without calculating

The first expression is six groups of $417+389$, and the second is one group.

So $6 \times (417+389)$ is greater. It is **6 times as large**.

Exercise 13 - Write: add, then multiply

The addition happens first, so it goes in parentheses: $(9+6)$.

Then multiply by 4.

Expression: $4 \times (9+6)$ (or $(9+6) \times 4$)

Exercise 14 - Write: subtract, then divide

The subtraction happens first, so it goes in parentheses: $(20-5)$.

Then divide by 3.

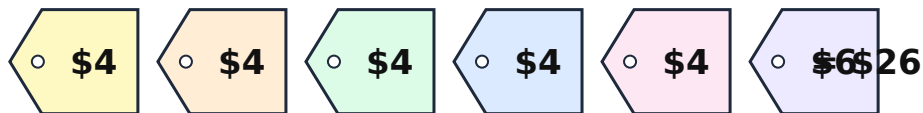
Expression: $(20-5) \div 3$

Exercise 15 - School store

Expression: $5 \times 4 + 6$.

Multiply first: $5 \times 4 = 20$. Then add: $20 + 6 = 26$.

Maya pays \$26.



$$5 \times 4 + 6 = 26.$$

Exercise 16 - Trading cards

Expression: $3 \times 24 - 18$.

Multiply: $3 \times 24 = 72$. Subtract: $72 - 18 = 54$.

Jamal has **54 cards** left.

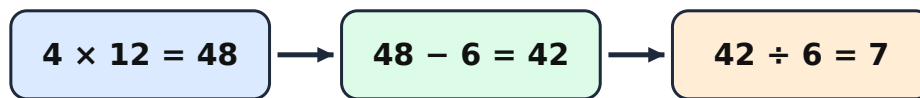
Exercise 17 - Bake sale cookies

Expression: $(4 \times 12 - 6) \div 6$.

Parentheses: $4 \times 12 = 48$, then $48 - 6 = 42$.

Divide: $42 \div 6 = 7$.

Each volunteer gets **7 cookies**.



Steps for Exercise 17.

Exercise 18 - Sticker rows

Expression: $(18 + 7) \div 5$.

Add: $18 + 7 = 25$. Divide: $25 \div 5 = 5$.

Each row has **5 stickers**.

Exercise 19 - Twice the sum

Expression: $2 \times (15 + 9) - 8$.

Parentheses: $15 + 9 = 24$. Multiply: $2 \times 24 = 48$. Subtract: $48 - 8 = 40$.

Answer: **40**

Exercise 20 - Find Diego's mistake

Diego added $6 + 4$ first. But multiplication comes before addition.

Correct work: $4 \times 5 = 20$, then $6 + 20 = 26$.

Correct value: **26**