Order of Operations

Grade 5 Math • Section 3.1

Name: _____	Date: _____	Score: _____ / 17

Quick Review and Helpful Hints

PEMDAS: **P**arentheses → **E**xponents → **M**ultiplication & **D**ivision (left to right) → **A**ddition & **S**ubtraction (left to right).

Multiplication and division are done in the **same** step, working left to right. Same for addition and subtraction.

Always work inside parentheses first, then exponents, before multiplying or dividing.

Example: Evaluate $3 + 4 \times (8 - 2) \div 3$.

Parentheses first: $8 - 2 = 6$. Now the expression is $3 + 4 \times 6 \div 3$. Multiply: $4 \times 6 = 24$. Divide: $24 \div 3 = 8$. Add: $3 + 8 = 11$.

Answer: 11

Practice Problems

Evaluate each expression using the correct order of operations.

1. $6 + 3 \times 4 =$ _____
2. $20 - 8 \div 2 =$ _____
3. $(5 + 3) \times 2 =$ _____
4. $7 \times 2 + 5 \times 3 =$ _____
5. $36 \div 6 + 4 =$ _____
6. $9 + (12 - 4) \times 2 =$ _____
7. $5 \times 6 - 18 \div 3 =$ _____
8. $(15 - 9) \times (2 + 4) =$ _____
9. $3 + 2^3 \times 4 =$ _____
10. $48 \div (4 + 4) =$ _____
11. $100 - 5 \times 3^2 =$ _____
12. $8 + 56 \div 7 - 2 =$ _____
13. $4 \times (9 - 3) + 10 =$ _____
14. $60 \div 10 + 3 \times 5 =$ _____
15. $2^4 - 6 \times 2 + 1 =$ _____

Word Problems

16. Leo buys 3 books at $\$8$ each and 2 pens at $\$3$ each. Write a numerical expression and evaluate: $3 \times 8 + 2 \times 3$.

_____

17. Maya says $2 + 3 \times 4 = 20$. Javier says the answer is 14. Who is correct? Explain using the order of operations.

_____

Answer Keys

1. $\boxed{18}$
2. $\boxed{16}$
3. $\boxed{16}$
4. $\boxed{29}$
5. $\boxed{10}$
6. $\boxed{25}$
7. $\boxed{24}$
8. $\boxed{36}$
9. $\boxed{35}$
10. $\boxed{6}$
11. $\boxed{55}$
12. $\boxed{14}$
13. $\boxed{34}$
14. $\boxed{21}$
15. $\boxed{5}$
16. $\boxed{\$30}$
17. $\boxed{\text{Javier; } 14}$

Step-by-Step Explanations

1. Start with the main idea. For order of operations, follow the order of operations in $6 + 3 \times 4$. The value is 18. Grouped expressions come first, then exponents, then multiplication or division before addition or subtraction.

2. Keep the work tidy. For order of operations, follow the order of operations in $20-8\div2$. The value is 16. Work from the inside out when you see parentheses, brackets, or braces.

3. Look at what the numbers mean. For order of operations, follow the order of operations in $(5 + 3) \times 2$. The value is 16. One careful line at a time is better than trying to do the whole expression mentally.

4. Use the setup first. For order of operations, follow the order of operations in $7\times2+5\times3$. The value is 29. Grouped expressions come first, then exponents, then multiplication or division before addition or subtraction.

5. Check the size of the answer. For order of operations, follow the order of operations in $36 \div 6 + 4$. The value is 10. Work from the inside out when you see parentheses, brackets, or braces.

6. Match the operation to the words. For order of operations, follow the order of operations in $9 + (12 - 4) \times 2$. The value is 25. One careful line at a time is better than trying to do the whole expression mentally.

7. Write the important values first. For order of operations, follow the order of operations in $5 \times 6 - 18 \div 3$. The value is 24. Grouped expressions come first, then exponents, then multiplication or division before addition or subtraction.

8. Follow the pattern carefully. For order of operations, follow the order of operations in $(15 - 9) \times (2 + 4)$. The value is 36. Work from the inside out when you see parentheses, brackets, or braces.

9. Start with the main idea. For order of operations, follow the order of operations in $3 + 2^3 \times 4$. The value is 35. One careful line at a time is better than trying to do the whole expression mentally.

10. Keep the work tidy. For order of operations, follow the order of operations in $48 \div (4 + 4)$. The value is 6. Grouped expressions come first, then exponents, then multiplication or division before addition or subtraction.

11. Look at what the numbers mean. For order of operations, follow the order of operations in $100 - 5 \times 3^2$. The value is 55. Work from the inside out when you see parentheses, brackets, or braces.

12. Use the setup first. For order of operations, follow the order of operations in $8 + 56 \div 7 - 2$. The value is 14. One careful line at a time is better than trying to do the whole expression mentally.

13. Check the size of the answer. For order of operations, follow the order of operations in $4\times(9-3)+10$. The value is 34. Grouped expressions come first, then exponents, then multiplication or division before addition or subtraction.

14. Match the operation to the words. For order of operations, follow the order of operations in $60 \div 10 + 3 \times 5$. The value is 21. Work from the inside out when you see parentheses, brackets, or braces.

15. Write the important values first. For order of operations, follow the order of operations in $2^4 - 6 \times 2 + 1$. The value is 5. One careful line at a time is better than trying to do the whole expression mentally.

16. Follow the pattern carefully. For order of operations, evaluate $3\times8+2\times3 = 24 + 6 = 30$. Grouped expressions come first, then exponents, then multiplication or division before addition or subtraction.

17. Start with the main idea. For order of operations, multiplication comes before addition: $2 + 3 \times 4 = 2 + 12 = 14$. Work from the inside out when you see parentheses, brackets, or braces.

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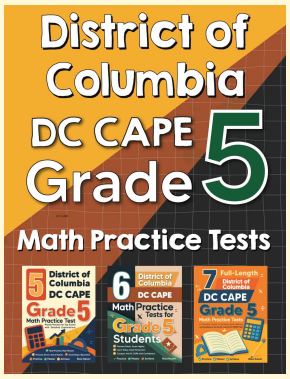

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