Writing and Interpreting Numerical Expressions

Writing and Interpreting Numerical Expressions: Models and Computation

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QUICK REVIEW

Translate the structure before calculating. “Three times the sum of 4 and 5” is $3 \times (4 + 5) = 27$. “Five more than three times 4” is $3 \times 4 + 5 = 17$. The grouping changes what gets multiplied.

Worked example

Write an expression for: four times the sum of 9 and 2. Then evaluate it.

1. The sum is $9 + 2 = 11$, so group it.
2. $4 \times 11 = 44$.
Answer: $4 \times (9 + 2) = 44$.

Practice Problems

Show your thinking.

1. Write an expression for: the sum of 8 and 5, multiplied by 4. Then evaluate it.

2. Explain what $6 \times 9 - 7$ means in words, then evaluate it.

3. Write an expression for: the quotient of 40 and the sum of 3 and 5. Then evaluate it.

4. Write one numerical expression for this situation: each of 3 boxes holds 12 red pens and 4 green pens. Find its value.

5. Write an expression for: subtract 6 from 30, then divide by 4. Then evaluate it.

6. Write an expression for: twice the sum of 11 and 7. Then evaluate it.

7. Describe a situation or calculation matching $24 \div 3 + 8$. Say what is done first and give its value.

8. Explain what $50 - 3 \times 9$ means in words, then evaluate it.

Answer Key

1. $(8 + 5) \times 4 = 52$.
2. 7 less than the product of 6 and 9; 47.
3. $40 \div (3 + 5) = 5$.
4. $3 \times (12 + 4) = 48$ pens.
5. $(30 - 6) \div 4 = 6$.
6. $2 \times (11 + 7) = 36$.
7. Add 8 to the quotient of 24 and 3; 16.
8. Subtract the product of 3 and 9 from 50; 23.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. $8 + 5 = 13$ is the sum.
2. $13 \times 4 = 52$.

Problem 2

1. 7 less than the product of 6 and 9.
2. The product is $6 \times 9 = 54$.
3. Seven less is $54 - 7 = 47$.

Problem 3

1. The divisor is $3 + 5 = 8$.
2. $40 \div 8 = 5$.

Problem 4

1. Pens per box: $12 + 4 = 16$.
2. Total: $3 \times 16 = 48$ pens.

Problem 5

1. $30 - 6 = 24$.
2. $24 \div 4 = 6$.

Problem 6

1. $11 + 7 = 18$.
2. $2 \times 18 = 36$.

Problem 7

1. Add 8 to the quotient of 24 and 3.
2. The addition is outside the division. Find $24 \div 3 = 8$ first.
3. $8 + 8 = 16$.

Problem 8

1. Subtract the product of 3 and 9 from 50.
2. First find the amount to subtract: $3 \times 9 = 27$.
3. Take that away from 50: $50 - 27 = 23$.

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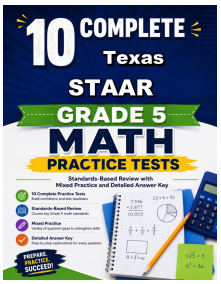

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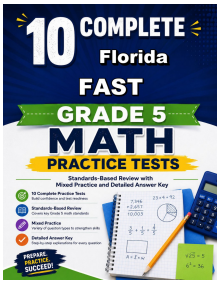

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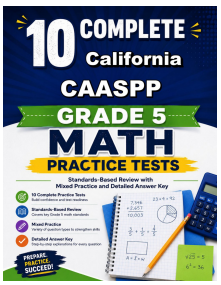

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