Terms, Factors, and Coefficients

Terms, factors, and coefficients: Models and calculations

Name _____ **Date** _____ **Score** _____ / 6

QUICK REVIEW

Terms are parts that are added at the outermost level. A coefficient is a number multiplying a variable part, while a constant term has no variable. Factors are the parts being multiplied. In $5(p+2)$, 5 and $(p+2)$ are factors; after expanding, $5p+10$ has two terms.

Worked example

Identify the terms in $8t+11$. Give the coefficient of t and the constant term.

1. The outer sum joins $8t$ and 11, so those are the two terms.
2. In $8t$, the number 8 multiplies t. The term 11 has no variable.
Answer: Terms $8t$ and 11; coefficient 8; constant 11.

Practice Problems

Show your thinking.

1. Name the three terms in $3a+2b+6$. Which term stays fixed when both variables change?

2. List the numerical factor and the two variable factors in the single term $7mn$. What is its coefficient?

3. In $4(x+3)+2$, name the two outer terms. Then name the two factors of the first term.

4. Write $r+9$ with its usually hidden coefficient shown. Identify the constant term and explain the coefficient.

5. A bill in dollars is $4x+3y+10$, with x basic items and y deluxe items. Give both per-item rates and the fixed fee. Find the bill for $x=2, y=3$.

6. Write an expression with a term whose coefficient is 9 on s, plus a constant term of 5. Underline the entire variable term.

Answer Key

1. $3a$, $2b$, and 6; the constant is 6.
2. Factors 7, m, n; coefficient 7.
3. Terms $4(x+3)$ and 2; factors 4 and $(x+3)$.
4. $1r+9$; coefficient 1, constant 9.
5. 4 dollars per basic item; 3 dollars per deluxe item; 10 dollars fixed; 27 dollars total.
6. $\underline{9s}+5$.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Split at the two addition signs to get $3a$, $2b$, and 6.
2. Only 6 has neither a nor b, so its value does not change.

Problem 2

1. Write $7mn$ as $7 \times m \times n$.
2. The number multiplying the variable part mn is 7.

Problem 3

1. The $+$ inside parentheses is part of one group, so it does not split the outer expression.
2. The outer sum adds 2 to $4(x+3)$. The first term is 4 times the whole group $(x+3)$.

Problem 4

1. Multiplying by 1 leaves r unchanged: $r = 1 \times r$.
2. The separate term 9 has no variable and remains 9 for every r.

Problem 5

1. The coefficients of x and y give their rates: 4 and 3 dollars per item. The term 10 is the fixed fee.
2. Basic items cost $4(2) = 8$ dollars; deluxe items cost $3(3) = 9$ dollars.
3. Total $= 8 + 9 + 10 = 27$ dollars.

Problem 6

1. Multiply s by 9 to build the whole term $9s$.
2. Add 5 as a separate term. Underline both 9 and s, not just the coefficient.

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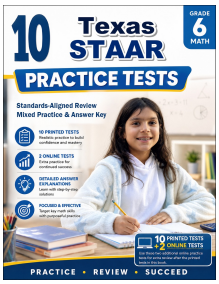

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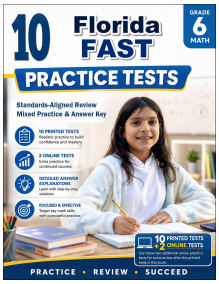

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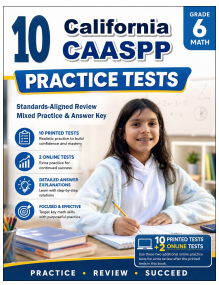

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