Grade 6

Topic: Algebraic Expressions and Properties

Instructions

Read each question carefully. Write algebraic expressions using variables and numbers where needed. Use properties like commutative, associative, and distributive to simplify or evaluate expressions. Show your steps clearly and write your answers in the space provided.

Part A: Writing Algebraic Expressions

1. Write an expression for "5 more than a number x".

2. Write an expression for "a number y multiplied by 7".

3. Write an expression for "the difference between 12 and a number a".

4. Write an expression for "twice the sum of a number n and 4".

5. Write an expression for "a number m divided by 3".

6. Write an expression for "the product of 9 and the difference of t and 2".

7. Write an expression for "the quotient of p and 6, then add 8".

Part B: Evaluating Expressions

Evaluate the expressions for the given values.

1. $2x + 3$, when $x = 4$

2. $5a - 1$, when $a = 3$

3. $6(y - 2)$, when $y = 5$

4. $\frac{n+6}{2}$, when $n = 10$

5. $3m^2$, when $m = 2$

6. $4z - 2$, when $z = 7$

7. $2(p + 3)^2$, when $p = 1$

Part C: Identify and Use Properties

State the property used in each equation (commutative, associative, distributive, identity, or zero property).

1. $3 + 5 = 5 + 3$

2. $(2 + 4) + 6 = 2 + (4 + 6)$

3. $5 \times (2 + 3) = 5 \times 2 + 5 \times 3$

4. $a + 0 = a$

5. $1 \times b = b$

6. $6 \times 0 = 0$

7. $(3 \times 2) \times 5 = 3 \times (2 \times 5)$

8. $7 + (2 + x) = (7 + 2) + x$

Part D: Simplify the Expressions

1. $3(x + 2)$

2. $2a + 4a$

3. $5(y - 1) + y$

4. $6n + 3n$

5. $(4 + x) + 6$

6. $7m - 3m + 2$

7. $2(x + 3) + 4$

8. $3a + 2a - a$

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