

Worksheet: Evaluating Algebraic Expressions

Instructions: For each problem, substitute the given values of x and y into the expression and simplify. Show all your work.

1. Evaluate the expression $2x + 3y$ when $x = 4$ and $y = -2$.

2. Evaluate the expression $5x - y$ when $x = -3$ and $y = 7$.

3. Evaluate the expression $x^2 + 4y$ when $x = 2$ and $y = 3$.

4. Evaluate the expression

$$\frac{x}{y} - 2$$

when $x = 8$ and $y = 4$.

5. Evaluate the expression $3x^2 - y^2$ when $x = -2$ and $y = 5$.

6. Evaluate the expression $4x + 6 - y$ when $x = 1$ and $y = -3$.

7. Evaluate the expression $x \cdot y + 7$ when $x = 5$ and $y = -4$.

8. Evaluate the expression

$$\frac{2x + 3}{y}$$

when $x = 6$ and $y = 2$.

9. Evaluate the expression $x^2 - 2xy + y^2$ when $x = 3$ and $y = -1$.

10. Evaluate the expression

$$\frac{x - y}{x + y}$$

when $x = 7$ and $y = 3$.

Solution Hints:

1. **Substitution:** Replace x and y in the expression with the given values.

2. **Simplification:** Follow the order of operations (PEMDAS/BODMAS) to simplify the expression.

3. **Verification:** Double-check your calculations to ensure accuracy.

Example Solution for Problem 1:

1. **Expression:** $2x + 3y$

Given: $x = 4$, $y = -2$

Substitute:

$$2(4) + 3(-2)$$

Simplify:

$$8 - 6$$

$$2$$

Answer: 2