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Algebraic expressions and equations for practice

I can provide you with sample problems that you can use to create your own worksheets. You can copy and paste these examples into a document or worksheet software of your choice.

Simplifying Expressions:

1. Simplify the following expression: 3x + 2y - x + 5y.
2. Evaluate the expression for x = 4 and y = 7: 2x^2 - 3xy + 5y^2.
3. Combine like terms in the expression: 4a^2b - 2ab + 7ab^2 - 3a^2b + 6ab.

4. Simplify: \(4x - 2(3x + 5) + 7\).

5. Combine like terms in the expression: \(2xy + 3x^2 - xy - 5x^2\).
6. Simplify the expression: \(3(a + 2b) - 2(3a - b)\).

Substituting Values:

1. If x = 5, evaluate the expression: 2x^2 - 3x + 7.
2. Given x = -2 and y = 3, calculate the value of 4xy - x^2 + y^2.
3. Substitute x = 6 into the expression 3x + 2x^2 - 5.

4. If \(x = -3\) and \(y = 2\), calculate the value of \(2x^2 - 3xy + 5y^2\).
5. Evaluate \(3x + 2y\) when \(x = 4\) and \(y = -1\).
6. Substitute \(x = 2\) into the expression \(4x^2 - 3xy + 7\).

Solving Equations:

1. Solve for x: 3x - 7 = 14.
2. Find the solution to the equation 2(2x + 5) = 18.
3. Solve for y: 5y/3 + 2 = 7.

4. Solve for \(x\): \(2x + 5 = 17\).
5. Find the solution to the equation \(3(x - 4) = 21\).
6. Solve for \(y\): \(2(y + 3) = 10\).

Word Problems:

1. The sum of two consecutive integers is 45. Find the two integers.
2. Sarah is three times as old as Tom. If Sarah's age is 24, how old is Tom?
3. The perimeter of a rectangle is 26 units. If the length is 8 units, what is the width of the rectangle?

4. The sum of two consecutive even integers is 48. What are the two integers?
5. A number is increased by 8, and the result is 30. Find the number.
6. The length of a rectangle is 3 times its width. If the area is 54 square units, what are the dimensions of the rectangle?