

Completing the square: Rewrite the equation in vertex form and solve for the variable.

Questions and answers

Here are some algebraic questions along with their corresponding answers:

Question 1: Simplify the expression: $3x + 2y - 4x + 5y$

Solution 1: Each component of the expression is called a term. Therefore, x and y are the terms in the expression. Terms which have the same variables are called like terms and like terms can be collected together by addition or subtraction.

$3x + 2y - 4x + 5y$ can be rearranged as $3x - 4x + 2y + 5y$

and simplified to: $-x + 7y$

Question 2: Solve for x : $2x + 3 = 11$

Solution 2: Terms which have the same variables can be collected together by addition or subtraction.

$2x + 3 = 11$ can be rearranged as $2x = 11 - 3$

$2x = 8$, Dividing both sides by 2

The solution is: $x = 4$

Question 3: Factor the expression: $x^2 - 9$

Solution 3: The factored expression is: $(x - 3)(x + 3)$

Question 4: Solve the equation: $5(2x - 3) = 6x + 1$

Solution 4: Expand the brackets: $10x - 15 = 6x + 1$

Collecting like terms: $10x - 6x = 1 + 15$

$4x = 16$

The solution is: $x = 4$

Question 5: Find the value of a if $3(a - 2) = 15$

Solution 5: Expand the brackets: $3a - 6 = 15$