Algebraic Identities Master Quiz

Part A: *For each problem, expand the expression into its simplest form.*

1. Expand $(x + 5)^2$

2. Expand $(2a - 3)^2$

3. Expand $(3x + 4)(3x - 4)$

4. Expand $(p + 7)(p + 3)$

5. Expand $(5m - 2n)^2$

Part B: *Use a suitable algebraic identity to evaluate the numerical expression without direct long multiplication.*

6. Evaluate $(102)^2$

7. Evaluate $(99)^2$

8. Evaluate 53×47

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9. Evaluate $(10.5) \times (9.5)$

10. Evaluate $(71)^2 - (69)^2$

Part C: *Identify the missing parts to complete the identity statements or derived equations.*

11. Complete the standard binomial square identity: $(a-b)^2 = a^2$ - ..... + b^2

12. Find the missing middle term in: $(3x+y)^2 = 9x^2 + \ldots\ldots + y^2$

13. If $x + 1/x = 5$, find the value of $x^2 + 1/x^2$ using the identity $(x + 1/x)^2 = x^2 + 1/x^2 + 2$.

Part D: *Apply identities to simplify complex algebraic structures.*

14. Simplify: $(2x + 3)^2 - (2x - 3)^2$

15. Factorize $25x^2 - 49y^2$ using the identity $a^2 - b^2$

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