

Algebra 1
Special Binomial Products

Special Binomial Products | A1-U08-P06

96 problems · Four activity formats

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Topic focus
This topic is a focused set of 96 practice tasks on Special Binomial Products.
8 PDFs and a README; 50 buyer pages.

Algebra 1

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Name: _____ Date: _____ Class: _____

Answer each question and record the matching bank letter. Give exact values. A value without its unit is not a complete answer.

Determine the square when both degree-three monomial terms are negative. Use the complete expanded polynomial as the matching response and retain the original identity explanation, including any cross term or cancellation. Expression: $(-2a^2b - 3bc^2)^2$ _____ Bank label: _____	Square each bivariate monomial and calculate their cross term. Use the complete expanded polynomial as the matching response and retain the original identity explanation, including any cross term or cancellation. Expression: $(m^2n + 2mn^2)^2$ _____ Bank label: _____
Square the two full monomial terms and combine their exponents correctly. Use the complete expanded polynomial as the matching response and retain the original identity explanation, including any cross term or cancellation. Expression: $(2p^2q - 5pq^2)^2$ _____ Bank label: _____	Expand the square of the bilinear monomial and constant. Use the complete expanded polynomial as the matching response and retain the original identity explanation, including any cross term or cancellation. Expression: $(4mn + 5)^2$ _____ Bank label: _____
Turn the given square into a collected polynomial. Use the complete expanded polynomial as the matching response and retain the original identity explanation, including any cross term or cancellation. Expression: $(7a^2b - 2)^2$ _____ Bank label: _____	Expand without factoring away the requested square structure. Use the complete expanded polynomial as the matching response and retain the original identity explanation, including any cross term or cancellation. Expression: $(5uv^2 + 2u^2)^2$ _____ Bank label: _____
Expand the square before distributing the negative outer multiplier. Use the complete expanded polynomial as the matching response and retain the original identity explanation, including any cross term or cancellation. Expression: $-2(2y + 3)^2$ _____ Bank label: _____	Treat $y - 2$ as the second whole term, apply the square identity, and then remove the remaining parentheses. Use the complete expanded polynomial as the matching response and retain the original identity explanation, including any cross term or cancellation. Expression: $(x + (y - 2))^2$ _____ Bank label: _____

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Answer each question and show your reasoning in the workspace. Give exact values rather than decimals unless the question supplies a decimal. A value without its unit is not a complete answer.

Expand the square and verify that every resulting term has the same total degree. Expression: $(x^2 + 2xy)^2$ _____ _____	Give the exact product of the fractional conjugates. Expression: $((\frac{1}{2})x + 4)((\frac{1}{2})x - 4)$ _____ _____
Simplify the product with rational leading coefficient. Expression: $((\frac{2}{3})y - 3)((\frac{2}{3})y + 3)$ _____ _____	Treat ab as the common monomial and calculate the product. Expression: $(ab + 5)(ab - 5)$ _____ _____
Find the two monomials that survive this three-variable product. Expression: $(2xy - 3z)(2xy + 3z)$ _____ _____	Apply the identity to the two full bivariate monomials. Expression: $(m^2n + 2mn^2)(m^2n - 2mn^2)$ _____ _____

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Begin at START. Answer the card, then find the matching final answer at the top of another card. Use the recording sheet for your reasoning. Visit each card once and continue to FINISH.

Incoming: $9y^4 - 6y^2z^3 + z^6$. Find the exact difference of monomial squares in this product. Expression: $(a^2b^3 + bc)(a^2b^3 - bc)$ Your response: _____	START Expand the square and include its doubled cross term. Use the complete expanded polynomial as the matching response and retain the original identity explanation, including any cross term or cancellation. Expression: $(x + 3)^2$ Your response: _____
Incoming: $x^2 + 6x + 9$. Write this squared difference as a trinomial. Use the complete expanded polynomial as the matching response and retain the original identity explanation, including any cross term or cancellation. Expression: $(y - 5)^2$ Your response: _____	Incoming: $25a^2 + 10ab + b^2$. Convert the square into a homogeneous quadratic in m and n. Use the complete expanded polynomial as the matching response and retain the original identity explanation, including any cross term or cancellation. Expression: $(2m - 7n)^2$ Your response: _____
Incoming: $m^2 + 8mn + 16n^2$. Find the exact coefficients in the bivariate trinomial. Use the complete expanded polynomial as the matching response and retain the original identity explanation, including any cross term or cancellation. Expression: $((\frac{1}{4})x - 2y)^2$ Your response: _____	Incoming: $36a^2 + 4ab + (\frac{1}{9})b^2$. Expand and order the result by descending degree in x. Use the complete expanded polynomial as the matching response and retain the original identity explanation, including any cross term or cancellation. Expression: $(2 - x^2)^2$ Your response: _____

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Evaluate the supplied statement or method. Say whether it is correct, repair it if it is not, and verify the result exactly. Not every prompt contains an error.

Which listed method matches the expression's factor structure?

Expression: $(z + 8)^2$

binomial square

conjugate product

general distribution

Select the special-product pattern shown by these factors.

Expression: $(w + 10)(w - 10)$

binomial square

conjugate product

general distribution

Decide whether a special identity applies or ordinary distribution is required.

Expression: $(a + 2)(a + 5)$

binomial square

conjugate product

general distribution

Explain whether the opposite-looking constants justify a conjugate shortcut.

Expression: $(x + 5)(x - 4)$

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Full Worked Solutions - excerpt

Worked example

Problem. Find the exact difference of monomial squares in this product.

Expression: $(a^2b^3 + bc)(a^2b^3 - bc)$

Answer. $a^4b^6 - b^2c^2$.

Explanation and check.

Squaring the common term gives a^4b^6 and squaring the opposite term gives b^2c^2 .

Worked example

Problem. Explain whether the opposite-looking constants justify a conjugate shortcut.

Expression: $(x + 5)(x - 4)$

Answer. No; use general distribution.

Explanation and check.

Conjugates require exactly $+V$ and $-V$. Here $+5$ and -4 have different magnitudes, so their cross terms do not cancel.