Sets & Steps
Math Practice & Worked Solutions

Algebra 1

Difference of Squares

Difference of Squares | A1-U08-P09

96 problems · Four activity formats

Topic focus

This topic is a focused set of 96 practice tasks on Difference of Squares.

8 PDFs and a README; 49 buyer pages.

The following pages use the same questions, given data, and notation as the final files. Question/card serial numbers and internal IDs are omitted in this preview only. Table values and matching responses are retained. Full answer keys are not included.

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Algebra 1

Difference of Squares

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.

Factor the two high-power terms without changing their variable bases. Match the complete factorization using the stated coefficient domain, and verify as requested. An expanded polynomial alone is not the requested response. Use the expression $225x^{8}$-y^{10}. Use integer coefficients. Bank label: _____	Extract each even-power root and write the factorization. Match the complete factorization using the stated coefficient domain, and verify as requested. An expanded polynomial alone is not the requested response. Use the expression $49a^4 - 36b^6$. Use integer coefficients. Bank label: _____
Write the conjugate pair after finding both multivariable roots. Match the complete factorization using the stated coefficient domain, and verify as requested. An expanded polynomial alone is not the requested response. Use the expression $169c^2d^4 - 64e^6$. Use integer coefficients. Bank label: _____	Factor despite the different degrees carried by the two variables. Match the complete factorization using the stated coefficient domain, and verify as requested. An expanded polynomial alone is not the requested response. Use the expression $196x^{10} - 225y^2$. Use integer coefficients. Bank label: _____
Take the integer roots of both composite square coefficients and factor. Match the complete factorization using the stated coefficient domain, and verify as requested. An expanded polynomial alone is not the requested response. Use the expression $289p^4 - 324q^8$. Use integer coefficients. Bank label: _____	Use the consecutive coefficient roots to produce the factors. Match the complete factorization using the stated coefficient domain, and verify as requested. An expanded polynomial alone is not the requested response. Use the expression $400a^2b^6 - 441c^4$. Use integer coefficients. Bank label: _____
Write conjugates using the correct power of each variable. Match the complete factorization using the stated coefficient domain, and verify as requested. An expanded polynomial alone is not the requested response. Use the expression $x^6 - 100y^4$. Use integer coefficients. Bank label: _____	Factor after taking the square root of each even-exponent monomial. Match the complete factorization using the stated coefficient domain, and verify as requested. An expanded polynomial alone is not the requested response. Use the expression $36x^8 - 49y^6$. Use integer coefficients. 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.

Decide whether the difference-of-squares identity applies, and name the two square bases. Use the expression $x^2 - 25$. Use integer coefficients.	Identify whether the expression is eligible for conjugate factoring and give its term roots. Use the expression $9x^2 - 16$. Use integer coefficients.
Check both terms and state whether this is a difference of squares. Use the expression $y^2 - 49$. Use integer coefficients.	State the square-base pair if the identity applies. Use the expression $4a^2 - 81$. Use integer coefficients.
Determine whether the real difference-of-squares identity can be used as written. Use the expression $x^2 + 36$. Use real coefficients.	Recover c from the stated conjugate factors. Use the expression x^2-c. The stated factors are $(x - 7)(x + 7)$. Use integer coefficients.

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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: $(25m^4\text{-}n)(25m^4 + n)$.

Factor with the unit square as the first base. Match the complete factorization using the stated coefficient domain, and verify as requested. An expanded polynomial alone is not the requested response. Use the expression $1 - 81x^2$. Use integer coefficients.

Your response: _____

Incoming: $(3y - 1)(3y + 1)$.

Factor the two-variable square difference. Match the complete factorization using the stated coefficient domain, and verify as requested. An expanded polynomial alone is not the requested response. Use the expression $25a^2\text{-}b^2$. Use integer coefficients.

Your response: _____

Incoming: $(9a - 10b)(9a + 10b)$.

Apply the difference-of-squares identity exactly once. Match the complete factorization using the stated coefficient domain, and verify as requested. An expanded polynomial alone is not the requested response. Use the expression $16x^4 - 25$. Use integer coefficients. Apply the difference-of-squares identity exactly once.

Your response: _____

Incoming: $(x - 11)(x + 11)$.

Preserve the term order when forming the conjugate factors. Match the complete factorization using the stated coefficient domain, and verify as requested. An expanded polynomial alone is not the requested response. Use the expression $100 - 9x^2$. Use integer coefficients.

Your response: _____

Incoming: $(3\frac{m}{4} - 5n)(3\frac{m}{4} + 5n)$.

Factor the monomial square minus one. Match the complete factorization using the stated coefficient domain, and verify as requested. An expanded polynomial alone is not the requested response. Use the expression $100u^6v^2 - 1$. Use integer coefficients.

Your response: _____

Incoming: $(2x - 5)(2x + 5)$.

Supply the integer conjugate factors. Match the complete factorization using the stated coefficient domain, and verify as requested. An expanded polynomial alone is not the requested response. Use the expression $9y^2 - 1$. Use integer coefficients.

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.

Treat the shifted expression as one square base, then simplify both resulting factors. Choose whether to preserve the displayed composite expressions as square bases or expand and collect first. Justify which route exposes the two squares more efficiently for this expression, then give the original requested factorization. Use the expression $(x + 3)^2 - 25$. Use integer coefficients.

Factor the shifted square difference and combine constants inside each factor. Choose whether to preserve the displayed composite expressions as square bases or expand and collect first. Justify which route exposes the two squares more efficiently for this expression, then give the original requested factorization. Use the expression $(x - 4)^2 - 9$. Use integer coefficients.

Form conjugates of the complete group and reduce their constants. Choose whether to preserve the displayed composite expressions as square bases or expand and collect first. Justify which route exposes the two squares more efficiently for this expression, then give the original requested factorization. Use the expression $(2x + 1)^2 - 16$. Use integer coefficients.

Factor using the scaled shifted group as a single base. Choose whether to preserve the displayed composite expressions as square bases or expand and collect first. Justify which route exposes the two squares more efficiently for this expression, then give the original requested factorization. Use the expression $(3x - 2)^2 - 36$. Use integer coefficients.

Difference of Squares

Full Worked Solutions - excerpt

Worked example

Problem. State the square-base pair if the identity applies. Use the expression $4a^2 - 81$. Use integer coefficients.

Answer. The pair is $2a$ and 9; the identity applies.

Explanation and check.

Squaring $2a$ gives $4a^2$ and squaring 9 gives 81, with the needed difference sign.

Worked example

Problem. Use the specified factor to recover the missing square term T and the conjugate partner. Use the expression $(x + 4)^2 - T$. One required factor is $x - 3$. Use integer coefficients.

Answer. T = 49 and the partner is $x + 11$.

Explanation and check.

The difference factor $(x + 4) - B = x - 3$ forces $B = 7$. Thus $T = B^2 = 49$, and the sum factor is $x + 4 + 7 = x + 11$.