

Algebra 1
Greatest Common Factor of Polynomials

Greatest Common Factor of Polynomials | A1-U08-P07

96 problems · Four activity formats

01	Answer Bank Challenge	24 tasks
02	Grid Rounds	24 tasks
03	Match & Move	24 cards
04	Error Analysis & Strategy	24 tasks
05	Quick Answer Key	96 answers
06	Full Worked Solutions	96 solutions
07	Teacher / Parent Use Guide	included
08	Terms of Use & License	included

Topic focus
This topic is a focused set of 96 practice tasks on Greatest Common Factor of Polynomials.
8 PDFs and a README; 63 buyer pages.

Algebra 1

Greatest Common Factor of Polynomials

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.

Ignore signs for divisibility, then combine the numerical gcd with the exponent minima. Use the complete requested greatest monomial or GCF factorization as the matching response. Retain any prescribed negative outside factor and the original verification. Terms: $-54p^5q^3, 72p^3q^5, -90p^4q^4, 126p^6q^2$ Convention: positive GCF _____ Bank label: _____	Find the greatest common monomial across all four high-degree terms. Use the complete requested greatest monomial or GCF factorization as the matching response. Retain any prescribed negative outside factor and the original verification. Terms: $64x^6y^2, 96x^4y^5, 160x^5y^3, 224x^7y^4$ _____ Bank label: _____
Determine the GCF and map each variable minimum to its controlling term. Use the complete requested greatest monomial or GCF factorization as the matching response. Retain any prescribed negative outside factor and the original verification. Terms: $81a^5b^4c^2, 108a^3b^6c, 135a^4b^5c^3$ _____ Bank label: _____	Use variable presence as well as exponents to find the GCF. Use the complete requested greatest monomial or GCF factorization as the matching response. Retain any prescribed negative outside factor and the original verification. Terms: $10m^3n^2, 14m^2p^3, 22m^4np$ _____ Bank label: _____
Find the coordinatewise exponent minima rather than following list order. Use the complete requested greatest monomial or GCF factorization as the matching response. Retain any prescribed negative outside factor and the original verification. Terms: $44x^3y^5, 66x^5y^2, 110x^4y^3, 154x^2y^4$ _____ Bank label: _____	Compute the greatest common monomial in r, s, and t. Use the complete requested greatest monomial or GCF factorization as the matching response. Retain any prescribed negative outside factor and the original verification. Terms: $50r^6s^3t^2, 75r^4s^5t, 125r^5s^4t^3$ _____ Bank label: _____
Find the GCF, then mentally check that all three quotients are monomials with no further common factor. Use the complete requested greatest monomial or GCF factorization as the matching response. Retain any prescribed negative outside factor and the original verification. Terms: $72a^4b^2c^3, 120a^3b^5c^2, 168a^6b^3c$ _____ Bank label: _____	Factor out the greatest common factor. Use the complete requested greatest monomial or GCF factorization as the matching response. Retain any prescribed negative outside factor and the original verification. Polynomial: $6x + 12$ _____ Bank label: _____

Algebra 1

Greatest Common Factor of Polynomials

Name: _____ Date: _____ Class: _____

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.

Find the GCF and identify the term that prevents y from appearing in it. Terms: $26x^2y$, $39xy^2$, $65x^3$ 	Determine the GCF and explain the effect of the missing z. Terms: $42m^3n^2z$, $70m^2n^4$, $98m^5n^3z^2$
Factor completely with respect to the GCF and identify the constant quotient. Polynomial: $28a^2b + 42ab^2 + 70ab$ 	Extract the positive GCF from four signed terms and test the residual's common factor. Polynomial: $-72x^5y^3 + 96x^3y^5 - 120x^4y^2 + 168x^6y^4$
Factor the polynomial and explain why c cannot enter the GCF. Polynomial: $30a^3b^2c + 42a^2b^4 + 66a^4b^3c^2$ 	Extract the greatest variable factor even though the coefficients share no larger integer. Polynomial: $35m^4n^3 - 22m^2n^5 + 13m^3n^2$

Algebra 1

Greatest Common Factor of Polynomials

Name: _____ Date: _____ Class: _____

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: $15u^3v^2$. Determine the greatest monomial when separate terms set the c and d minima. Use the complete requested greatest monomial or GCF factorization as the matching response. Retain any prescribed negative outside factor and the original verification. Terms: $34c^2d^3, 51c^4d, 85c^3d^2$ Your response: _____	Incoming: $27m^2n^2(2m^2n - 3n^3 + 5m)$. Factor out the GCF and confirm the residual terms have no universal variable. Use the complete requested greatest monomial or GCF factorization as the matching response. Retain any prescribed negative outside factor and the original verification. Polynomial: $34p^3q^2 + 51p^2q^4 - 85p^4q$ Your response: _____
Incoming: x. State the GCF, treating the absent y as exponent zero. Use the complete requested greatest monomial or GCF factorization as the matching response. Retain any prescribed negative outside factor and the original verification. Terms: $12x^2y, 18x^3, 30x$ Your response: _____	Incoming: a^2b^2. Extract the greatest monomial and preserve the displayed term order. Use the complete requested greatest monomial or GCF factorization as the matching response. Retain any prescribed negative outside factor and the original verification. Polynomial: $33a^5 + 55a^3 - 77a^4$ Your response: _____
START Determine the GCF when different terms control the a and b minima. Use the complete requested greatest monomial or GCF factorization as the matching response. Retain any prescribed negative outside factor and the original verification. Terms: $20a^2b, 30ab^2$ Your response: _____	Incoming: $12p^2$. Identify which term controls each variable exponent and give the GCF. Use the complete requested greatest monomial or GCF factorization as the matching response. Retain any prescribed negative outside factor and the original verification. Terms: $25a^3b^2, 35a^2b^3, 45a^4b$ Your response: _____

Algebra 1

Greatest Common Factor of Polynomials

Name: _____ Date: _____ Class: _____

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.

Find the greatest common monomial factor of the two terms. Choose a coefficient method: compare common divisors directly, or use prime factorizations. Explain why the chosen method fits these coefficients, then combine that result with the smallest shared exponent of each variable to give the greatest common monomial.

Terms: $6x$, 9

Determine the largest monomial dividing both entries. Choose a coefficient method: compare common divisors directly, or use prime factorizations. Explain why the chosen method fits these coefficients, then combine that result with the smallest shared exponent of each variable to give the greatest common monomial.

Terms: $8y$, 12

Give the numerical and variable parts of the GCF together. Choose a coefficient method: compare common divisors directly, or use prime factorizations. Explain why the chosen method fits these coefficients, then combine that result with the smallest shared exponent of each variable to give the greatest common monomial.

Terms: $10a$, $15a$

Find the GCF, using the smaller exponent on m . Choose a coefficient method: compare common divisors directly, or use prime factorizations. Explain why the chosen method fits these coefficients, then combine that result with the smallest shared exponent of each variable to give the greatest common monomial.

Terms: $14m^2$, $21m$

Greatest Common Factor of Polynomials

Full Worked Solutions - excerpt

Worked example

Problem. Explain why the work is not finished and give the GCF form.

Student work to audit: $12x^2 + 18x = 3x(4x + 6)$

Answer. The residual still shares 2; the complete form is $6x(2x + 3)$.

Explanation and check.

The proposed equality is valid, but moving the residual factor 2 outside changes $3x$ to the greatest factor $6x$.

Worked example

Problem. Identify the invalid outside exponent and factor the polynomial correctly.

Student work to audit: $20a^3b + 30a^2b^2 = 10a^3b(2 + 3b)$

Answer. Use the smaller a exponent; the correct form is $10a^2b(2a + 3b)$.

Explanation and check.

The second term contains only a^2 , so a^3 cannot divide it. Subtracting exponent 2 gives quotients $2a$ and $3b$.