

1. Degree and leading coefficient of a univariate polynomial

Identify the degree and leading coefficient of the given polynomial. $-x + 2x^3 - 5x^9 + 7$	Solution:
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2. Simplifying a sum or difference of two univariate polynomials.

Simplify. $(8y^2 + 7y - 3) + (-y^2 - 5y - 5)$	Solution:
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3. Multiplying a univariate polynomial by a monomial with a negative coefficient.

Simplify the following by using the distributive property. $-2x^7(3x^6 - 5x + x)$	Solution:
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4. Multiplying binomials with leading coefficients of 1

Multiply. $(x-2)(2x+4)$	Solution:
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5. Multiplying conjugate binomials: Univariate

Multiply. $(b+2)(b-2)$	Solution:
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6. Dividing a polynomial by a monomial: Univariate

Divide $\frac{8x^6 - 4x^2}{2x^3}$	Solution:
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7. Polynomial Long Division: Problem Type 1

Divide $(2x^2+7x-15) \div (x+5)$	Solution:
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8. Factoring out a binomial from a polynomial: GCF factoring, basic

Rewrite the expression by factoring out $(x+2)$ $4x^4(x+2) + 6(x+2)$	Solution:
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9. Factoring a quadratic with leading coefficient of 1

Factor. $x^2 - 13x + 40$	Solution:
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10. Factoring out a constant before factoring a quadratic

Factor completely. $2x^2 + 10x + 12$	Solution:
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11. Factoring a quadratic with leading coefficient greater than 1: Problem Type

Factor.	Solution:
$2x^2 + x - 6$	

12. Multiplying rational expressions involving multivariate monomials

Multiply.	Solution:
$\frac{12b^3}{10ab} \cdot \frac{4a}{3b}$	

13. Dividing rational expressions involving multivariate monomials

Divide.	Solution:
$\frac{12b^3}{8ab} \div \frac{4a}{3b}$	

14. Adding rational expressions with common denominators and binomial numerators

Add. $\frac{10x-4y}{8ab} + \frac{3x-2y}{8ab}$	Solution:
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15. Adding rational expressions with different denominators: ax, bx

Write as a single fraction. $10 - \frac{5x+4y}{2x} + \frac{5x+2y}{3x}$	Solution:
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16. Greatest common factor of three univariate monomials

Find the greatest common factor of these three expressions. a) $6u$, $3u^2$, and 14 b) $12y$, $8y^2$, and $20y^4$	Solution:
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17. Find the least common multiple of two monomials

Find the least common multiple of these two terms $4v^5xu^3 \text{ and } 22v^4u^8$	Solution:
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