

Algebra I

Notes 11.4, Part 2 Monomial Factoring

Objective: Factor the greatest common monomial from two or more terms.

You can *factor* a polynomial by removing the common monomial factor (GCF) and writing the remaining polynomial in parentheses (divide by the GCF).

Step 1. Write the prime factorization of each monomial (product of prime coefficients and variables with exponents of 1).

Step 2. Identify the common monomial factor (what factors ALL the terms have in common).

Step 3. Write a multiplication problem: GCF(remaining factors of each term).

Factor each polynomial by removing the GCF.

1. $6x^3z^2 + 3x^2y$

4. $12a^2b - 3a^2b^2$

2. $xy^2z^3 - 3xy^2$

5. $9x^2y^3z^2 + 6x^2y$

3. $2cd^4 + 3b^3d^2$

6. $xy^2z^3 - x^2y$

A polynomial that does not have a common monomial factor is called a _____ polynomial.

Classroom Practice

Factor each polynomial.

1. $6mn + 6mp =$

4. $5x^5 + 10 =$

2. $16n^3 - 12n^2 + 8n =$

5. $27y^3 + 18y^2 - 9y =$

3. $9n^3 - 12n^2 + 18m =$

6. $k^5 + k^3 + k =$

Complete the factorization.

1. $3s^2 + 9s - 3 = 3(\underline{\quad} + \underline{\quad} - \underline{\quad})$

5. $15d^5e^6 - 27d^4e^2 = 3d^4e^2(\underline{\quad} - \underline{\quad})$

2. $5v^4 - 15v^2 + 25v = 5v(\underline{\quad} - \underline{\quad} + \underline{\quad})$

6. $25f^6 + 25f^3 - 15 = 5(\underline{\quad} + \underline{\quad} - \underline{\quad})$

3. $8z^2 - 4z = 4z(\underline{\quad} - \underline{\quad})$

7. $12s^2 - 6s + 8 = 2(\underline{\quad} - \underline{\quad} + \underline{\quad})$

4. $2z^4 - z^3 + 5z^2 = z^2(\underline{\quad} - \underline{\quad} + \underline{\quad})$

8. $7b^4 + 7b^2 = 7b^2(\underline{\quad} + \underline{\quad})$