Section 6.5 Greatest Common Factor and Factoring by Grouping

# Objective 1: Factoring Out the GCF of a Polynomial’s Terms

The first step to factoring a polynomial is to check to see if there is a **greatest common factor** (GCF) that can be factored out of each term. The GCF of a list of terms or monomials is the product of the GCF of the numerical coefficients and each GCF of the powers of a common variable.

Factor each polynomial.

|  |  |
| --- | --- |
| a.$ 16x^{4}+8x^{3}$ | b. $12x^{2}y^{3}-20xy^{2}+10x^{3}y^{4}$ |

# Objective 2: Factoring Polynomials by Grouping

Sometimes it is possible to factor a polynomial by grouping the terms of the polynomial and looking for common factors in each group. This method of factoring is called factoring by grouping. In particular, look to see if factoring by grouping will work when the polynomial has four terms.

Factor each polynomial.

|  |  |
| --- | --- |
| a. $ab+6a+2b+12$ | b. $x^{3}-x^{2}-5x+5$ |