Factoring Algebraic Expressions Using Common Factoring

Quick Review
A *factor* is any quantity being multiplied.
If x divides evenly into an expression then x is called *a factor* of the expression.
The factors of a power like x^4 are all the smaller powers of x: $1, x, x^2, x^3$.
x is a *common factor* of two expressions if it is a factor of each of them.

Example: Factor $12x^3 - 8x^2$

solution: Since 4 is a common factor of 12 and 8, and since x^2 is the greatest common factor of x^3 and x^2 the expression can be factored into $4x^2(3x - 2)$.

Notice that if you use the Distributive Property to remove the parentheses you get the original expression.

Problems

Factor out the greatest common factor in each of the following expressions.

1. $16x^5 - 2x^3$
2. $54a^4b^3 - 36a^3b^3$
3. $49x^3 - 14x^2$
4. $17k^3 - 23k^2$
5. $18x^3 - 9y^3$
6. $10{,}000p^{40} - 1{,}000p^{39}$
7. $abcd - abc + bc$
8. $6n^3 - 18n^4$