Unit 11 Objective 2 Remediation
Factoring using the GCF

Example:

Factor $3x^3 + 27x^2 + 9x$

1.) To factor out the GCF in an expression like the one above, first find the GCF of all of the expression's terms (like objective 1 in this unit).

The GCF of $3x^3, 27x^2, and\ 9x$ is: $3x$

2.) Next, write the GCF on the left of a set of parentheses:

$3x(\quad\quad)$

3.) Next, divide each term from the original expression ($3x^3 + 27x^2 + 9x$) by the GCF ($3x$), then write it in the parenthesis.

$(3x^3) \div (3x) = x^2$ $\quad$ $(27x^2) \div (3x) = 9x$ $\quad$ $(9x) \div (3x) = 3$

Answer: $3x(x^2 + 9x + 3)$

4.) Check your answer by using the distributive property and multiply each term inside the parentheses by 3x:

$3x(x^2 + 9x + 3) = 3x^3 + 27x^2 + 9x$

If you factor $3x^3 + 27x^2 + 9x$ your final answer will be $3x(x^2 + 9x + 3)$

Try Some:

Factor each polynomial using the GCF.

1.) $21a^3 - 14a^2$

2.) $4x^3 + 32x$

3.) $10a - 35b + 15$

4.) $21c^3 - 14c$

5.) $3a^3 + 6a^2 - 12a$

6.) $10x^3 - 5x^2 + 20x$

7.) $5y^3 - 10y^2 + 15y$

8.) $18x^3 - 6x^2 + 24x$

9.) $8ab^2 - 12a^2b$

10.) $3a^2b^2 + 18ab$

11.) $6xy^3 - 24xy^2 - 12xy$

12.) $20x^2y^4 + 35x^3y^3 + 15x^4y^2$