Lesson 1.8 Four Term Factoring
Algebra 2

Four-term Factoring

1. Factor out the GCF for the first two terms
2. Factor out the GCF for the last two terms (if the 3rd term is negative, factor out the negative)
3. Factor out the common binomial from the two groups

Example:

1. $x^3 - 6x^2 - 6x + 36$

$x^2(x-6) - 6(x-6)$

$(x-6)(x^2-6)$

2. $2x^3 - 3x^2 - 4x + 6$

$x^2(2x-3) - 2(2x-3)$

$(2x-3)(x^2-2)$

3. $5a^3 - 25a^2 + 10a - 50$

$5a^2(a-5) + 10(a-5)$

$(a-5)(5a^2+10)$

$(a-5)5(a^2+2)$

$5(a-5)(a^2+2)$

4. $a^3 + 3a^2 - a - 3$

$a^2(a+3) - 1(a+3)$

$(a+3)(a^2-1)$

$(a+3)(a+1)(a-1)$

5. $3bv^2 + bu + 12xv^2 + 4xu$

$b(3v^2+u) + 4x(3v^2+u)$

$(3v^2+u)(b+4x)$

6. $14ab + 15 + 21a + 10b$

$14ab + 21a + 10b + 15$

$7a(2b+3) + 5(2b+3)$

$(2b+3)(7a+5)$