CHOOSING A FACTORING STRATEGY

Step 1: If necessary, put the polynomial in descending order.

Step 2: If possible, factor out a GCF. If the highest degree term is negative, factor out a negative GCF.

Step 3: How many terms are in the polynomial?

a. If there are two terms, decide if one of the following can be applied.

Difference of two squares: $\mathbf{a^2 - b^2 = (a + b)\,(a - b)}$

Difference of two cubes: $\mathbf{a^3 - b^3 = (a - b)(a^2 + ab + b^2)}$

Sum of two cubes: $\mathbf{a^3 + b^3 = (a + b)(a^2 - ab + b^2)}$

b. If there are three terms, try one of the following

Perfect square trinomials: $\mathbf{a^2 + 2ab + b^2 = (a + b)^2}$

$\mathbf{a^2 - 2ab + b^2 = (a - b)^2}$

If not a perfect square trinomial, factor using methods presented in Sections 4.2, 4.3 and 4.4.

Leading Coefficient 1 – Multi/Add

AC/B method works for both leading coefficients of one or not one.

If there are four or more terms, try factoring by grouping.

Step 4: See if any factors in the factored polynomial can be factored further.

Step 5: Check by Multiplying