**Factoring Strategies**

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|  | **Greatest Common Factor** | **Difference of Squares** | **Guess and Check** | **Grouping** | **Sum or Difference of Cubes** |
| **2 Terms** | **🗸** | **🗸** |  |  | **🗸** |
| **3 Terms** | **🗸** |  | **🗸** |  |  |
| **4 Terms** | **🗸** |  |  | **🗸** |  |

**Greatest Common Factor**

What do they share? Factor out the greatest thing they all share and then put what remains in parenthesis. E.g. 20x2 + 10x becomes 10x(2x + 1). It was a binomial at the start and remains one but has a GCF in front. Use the distributive property to check your work.

**Difference of Squares**

1st and last terms are perfect squares, minus sign between them.  Middle term drops out. Check – FOIL.

**Guess & Check**

### Trinomial Factors

+ + ( + )( + )

- + ( - )( - )

+ - ( + )( - )

- - ( + )(- )

Find (factors of first ± factors of last)(factors of first ± factors of last) such that insides and outsides add/subtract to get middle term. Check – FOIL.

For example x2 – 6x + 8

Read it backward. What are factors of 8 that add to –6? Factors of 8 are 8 and 1 or 4 and 2. The 4 and 2 will add up to -6 if they are both negative. (x – 4)(x – 2) are the factors of x2 – 6x + 8.

**Grouping**

Factor out the GCF of 1st two terms and the GCF of last two terms. Success if same factors occur in both. If so, write what they share in one parenthesis and what’s left in another. If not, regroup. Check – FOIL.

**Sum and Difference of Two Cubes**

The result is a binomial times a trinomial. Binomial is the same as the original with 3rd powers removed. Trinomial begins with the first term of the binomial squared, a change of signs, the product of both terms, a plus sign, the last term squared. u3 + v3 = (u + v)(u2 – uv + v2) or

u3 – v3 = (u – v)(u2 + uv + v2)