

*** USE WHEN YOU HAVE 4 TERMS ***
Factor by Grouping

- 1) Group terms in sets of two's create 2 binomials using parenthesis.
- 2) Factor out the GCF from each set.
- 3) Make sure the Factors / Binomials remaining inside the parenthesis Match.
- 4) If it does not, write prime.
- 5) If it does, one factor will be your Matching binomials and the other will be the GCF's (written as a binomial)

If there doesn't look like a GCF you can always take out a 1*

Factor by Grouping

1) $(8x^3 + 2x^2 + 12x + 3)$

$2x^2(\cancel{4x+1}) + 3(\cancel{4x+1})$

$(4x+1)(2x^2+3)$

Factor by Grouping

2) $(x^3 + x^2 + x + 1)$

$x^2(\cancel{x+1}) + 1(\cancel{x+1})$

$(x+1)(x^2+1)$

Factor by Grouping

3) $(5x^3 + 10x^2 + 2x + 5)$

$5x^2(1x+2) + 1(2x+5)$

PRIME

Factor by Grouping

$$4) (x^3 - 3x^2 + xy - 3y)$$

$$x^2(\cancel{x-3}) + y(\cancel{x-3})$$

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

Factor by Grouping

$$(2x^3 - 3x^2 - 2x - 1)$$

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

PRIME

$$① 2x^3 + 6x^2 + x + 3$$

$$(x+3)(2x^2+1)$$

$$② x^2 + 3x + 5x + 15$$

$$(x+3)(x+5)$$

$$③ x^2 + 2x - 4x - 8$$

$$(x+2)(x-4)$$

$$④ 4x^3 - 6x^2 - 6x + 9$$

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