# FACTORING

*1. GCF (GREATEST COMMON FACTOR)

2. GROUPING (4 OR MORE TERMS)

3. P-S-D (FORM: $x^2+bx+c$)

4. KEY # (FORM: $ax^2+bx+c$)

5. DIFF. OF 2 SQUARES DOTS (2 TERMS WITH A MINUS BETWEEN THEM)

6. DIFF. OF 2 CUBES (2 TERMS WITH A MINUS BETWEEN THEM)

7. SUM OF 2 CUBES (2 TERMS WITH A PLUS BETWEEN THEM)

(1) $5a+15$

$5(1a+3)$

$5(a+3)$

(2) $20a^2b^5-24a^3b^3$

$4a^2b^3(5b^2-6a^5)$

(3) $3x^3+9x^7-21x^4-81x^5$

$9x^7-81x^5-21x^4+3x^3$

$3x^3(3x^4-27x^2-7x+1)$

(4) $-32x^3+12x^2+10x$

$-2x(16x^2-6x-5)$

NOTE: IF YOUR 1ST TERM IS NEGATIVE ALWAYS FACTOR OUT A NEGATIVE

(5) $a(a-7)+3(a-7)$

$(a-7)(a+3)$

GROUPING

*1. TRY EQUAL GROUPS OR

2. REARRANGE AND TRY EQUAL GROUPS OR

3. TRY UNEQUAL GROUPS

(6) $2x^2+6x+bx+3b$

$2x(x+3)+b(x+3)$

$(x+3)(2x+b)$

(7) $mn+5m-7n-35$

$m(n+5)-7(n+5)$

$(n+5)(m-7)$

(8) $x^3-3x+4x^2-12$

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

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

$x^3+4x^2-3x-12$

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

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

$x+3$

$+1(x+3)$