Factor each of the following polynomials.

A) $x^2-3x-28$ **B)** x^2-5x+6 **C)** x^2+6x+5

D) $x^2+8x+16$ **E)** $x^2+9x-22$ **F)** x^2-25

G) x^2-9 **H)** $2x^2+7x+6$ **I)** $2x^2+13x+21$

J) $3x^2-10x+8$ **K)** $2x^2-3x-35$ **L)** $5x^{2n}+13x^n+6$

Factoring Formulas

Complete each of the following formulas.

$a^2+2ab+b^2=$

$a^2-2ab+b^2=$

$a^2-b^2=$

$a^3+b^3=$

$a^3-b^3=$

Factor each of the following using the factoring formulas.

A) x^2-36 **B)** $9x^2-36$ **C)** $x^2+12x+36$

D) $x^2-10x+25$ **E)** $x^2+x+\frac{1}{4}$ **F)** $25x^2-10x+1$

G) x^3+125 **H)** x^3-27 **I)** $2x^3+54$

Factor each of the following polynomials by grouping

A) $x^3 - x^2 + 2x - 2$

B) $x^3 + 5x^2 - 5x - 25$

C) $x^2 - ax + cx - ac$

D) $5x^3 - 10x^2 + 3x - 6$

E) $x^3 - 4x^2 + 6x - 24$

F) $x^2 + 2xy + y^2 - z^2$

G) $10x^3 + 8x^2 + 15xy + 12y$

H) $2x^3 - 10x^2 + 4x - 20$

I) $3x^2 + xy - 3xz - yz$

Factoring Complex Polynomials

The following questions were designed to give you a hard time! You will need to use all of your knowledge on factoring for the following questions. Remember to always look at the problem to make sure there is nothing else you can do. Pay particular attention to any factor that is greater than a first degree polynomial.

Factor each of the following polynomials

A) $x^2 - y^2 + 2yz - z^2$

B) $3x^4 - 243$

C) $2x^3 - 16$

D) $2x^4 - 58x^2 + 200$

E) $x^5 - 4x^3 - x^2 + 4$

F) $x^6 - 64$

G) $6x^2 + 2xy - 3xz - yz$

H) $x^2 - z^2 + y^2 - 2xy$

I) $16x^2 - y^2 - 2yz - z^2$