Factoring:

IS THERE A GCF?!?!

Greatest Common Factor: GCF( )

$\frac{2x^2}{2x} + \frac{4x}{2x}$

$2x(x+2)$

2 Terms: Difference of Two Squares: $(\sqrt{1}+\sqrt{2})(\sqrt{1}-\sqrt{2})$

x^2-36

$(x+6)(x-6)$

3 Terms: Trinomials: (x)(x)

$x^2-7x+12$ 1, 12, 2, 6, 3, 4

$(x-4)(x-3)$

1) First sign comes down

2) The two signs must multiply for the last sign

3) Find two numbers that multiply to the last number and add/subtract to the middle number

$3x^2+2x-8$ PT

$x^2+2x-24$

$\frac{(x+6)(x-4)}{3}$

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

$4x^3+4x-3$ PT

$x^2+4x-12$

$\frac{(x-6)(x+2)}{4}$ → reduce fractions

$(x-\frac{3}{2})(x+\frac{1}{2})$

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

3 Terms: Tricky Trinomials

Bridge Method:

1) Build a bridge between the first and last numbers (Multiply)

2) Factor Trinomial Normally

3) Pay the toll (Divide by the leading coefficient)

*If possible, reduce the fraction

If they divide nicely, divide them

If not, put the denominator in front of the variable inside the parenthesis

$\frac{x^3}{x^2} - \frac{5x^2}{x^2} + \frac{9x+45}{-9}$

x^2-9

$x^2(x-5)-9(x-5)$

4 Terms: Grouping: ( )( )

1) Factor out the GCF in each group

*Factor out a negative if a negative is in front of the group.

2) Combine coefficients and keep like term. $(x^2-9)(x-5)$

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

CAN YOU FACTOR FURTHER?!?!?!

$\frac{2x^2-50}{2}$

$2(x^2-25)$

$2(x+5)(x-5)$