Factoring

Factoring Strategies

General Factoring Strategy

1) If there is a GCF greater than 1, factor it out.
2) If there is a binomial, check to see if it is the difference of squares:

$$a^2 - b^2 = (a+b)(a-b)$$

3) If there is a trinomial, ask the following questions in this order:
   1) Is it a perfect square trinomial?

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

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

   2) Is the leading coefficient 1 (a = 1)? If so, find factors of c that add to b....
   3) Is the leading coefficient something other than 1 (a≠1)? If so, use the "ac method" to factor. That is, find factors of ac that add to b and use the numbers in that product to rewrite the middle term. Factor by grouping.
4) If there are four terms, try factor by grouping.

Factor the following expressions completely.

$x^2 - 11x + 18$

$9x^2 - 18x + 5$

$-4y^3 + 36y$

Factor the following expressions completely.

$6r^2 - 18r - 60$

$64x^2 - 80xy + 25y^2$

$x^3 + 2x^2 - 9x - 18$

$p^4 + p^2$