Expand each.

3. $(m - 9)^2 = (m-9)(m-9)$

	m	-9
m	m^2	$-9m$
-9	$-9m$	$+81$

$m^2 - 18m + 81$

4. $(6R + 5)^2$

	$6R$	$+5$
$6R$	$36R^2$	$+30R$
$+5$	$+30R$	$+25$

$36R^2 + 60R + 25$

$(ax + b)^2 = (ax)^2 + 2axb + b^2$

Square the first term

Multiply the first and last terms then... double it.

Square the last term

$(ax + b)^2 = (ax)^2 + 2axb + b^2$

This sign is ALWAYS the same as what you see in the original problem

This sign is ALWAYS POSITIVE

Expand each.

5. $(c + 7)(c - 7)$

$c^2 - 49$

	c	$+7$
c	c^2	$\cancel{+7c}$
-7	$\cancel{-7c}$	-49

6. $(4g - 5)(4g + 5)$

$16g^2 - 25$

middle terms will cancel

Product of Opposite Factors:

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

Square the first term

This sign is ALWAYS NEGATIVE

Square the second term

Expanding

removing parentheses by using the ...

Distributive Property

It involves Multiplication

Factoring

the inverse of expanding ...
putting parentheses back into the problem.

It involves Division.

Factor each.

The first step when factoring should always be to took for **GCF**

(sometimes that is all you can do!)

1. $\frac{8x^2}{8x} - \frac{24x}{8x}$

$8x(x-3)$

2. $9a^2 + 30a$

$3a\,(3a+10)$

Factor each.

These are the results of multiplying Opposite Factors

Also known as:

Difference of Perfect Squares

3. $Q^2 - 36$

$(Q+6)(Q-6)$

4. $49n^2 - 81$

$(7n+9)(7n-9)$

Factoring Difference of Perfect Squares

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

Sum of Perfect Squares

$a^2 + b^2 =$ The only thing you do is factor out a GCF, if there is one.

Factor completely

5. $5w^2 - 80$

$5(w^2 - 16)$

$5(w+4)(w-4)$

6. $12x^2 - 27$

$3(4x^2 - 9)$

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

Steps when factoring:

1. Take out GCF.
2. Look for the Difference of Perfect Squares if there are only two terms.
3. If there are three terms ......