Multiplying a binomial by its *conjugate* yields another special product called the **Difference of Two Squares**.

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

(This is the only time the **O**uter & **I**nner products of **FOIL** cancel each other out!)

Our job is to recognize the difference of squares and factor it.

Example: $4x^2 - 9y^2$

Both terms are perfect squares (coefficient and variable) with opposite signs.

Its factors are the conjugate binomials: $(2x + 3y)(2x - 3y)$

Using "self-talk" works well:

(sq rt of 1st term **"+"** sq rt of 2nd term**)(**sq rt of 1st term **"-"** sq rt of 2nd term**)**

Writing (or "picturing") $\mathbf{4x^2 - 9y^2}$ as $\mathbf{(2x)^2 - (3y)^2}$ helps too.

$4x^2 - 9y^2 = (2x)^2 - (3y)^2 = (2x + 3y)(2x - 3y)$

REMEMBER:

The sum of squares ($4x^2 + 9y^2$) is **NOT FACTORABLE!**

Can you factor

$9x^2 - 12xy + 4y^2 - 4$