

## DIFFERENCE OF PERFECT SQUARES

- Must have two terms with a minus
- All exponents must be even because they will get divided by 2
- All coefficients and constants must be perfect squares (1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225, etc.) because we will  $\sqrt{\quad}$  them
- The answer will be conjugate pairs  $(\quad + \quad)(\quad - \quad)$
- Always check the  $(\quad - \quad)$  to see if that is also DOPS and if yes, factor that one also (see Example 2 below)

**Example 1:**  $64x^2 - 49y^4$

We divide the exponents by 2 and square root the 64 and 49  
 $(8x + 7y^2)(8x - 7y^2)$

**Example 2:**  $c^{24} - h^{36}$

First, we divide the exponents by 2 to get

$$(c^{12} + h^{18})(c^{12} - h^{18})$$

Since  $(c^{12} - h^{18})$  is DOPS, we go again.

$$(c^{12} + h^{18})(c^6 + h^9)(c^6 - h^9)$$

The factoring is complete because h now has an odd exponent.