

Factoring Involving More than One Technique.

① Factor: $\frac{1}{16}a^4 - 81b^8 = \dots$ difference of two terms!
 Could be a difference of squares, and it is.

$$= \left(\frac{1}{4}a^2\right)^2 - \left(9b^4\right)^2 = \left(\frac{1}{4}a^2 - 9b^4\right)\left(\frac{1}{4}a^2 + 9b^4\right)$$

another difference of squares

sum of squares, of type $a^2 + b^2$, not factorable!

$$= \left(\frac{1}{2}a - 3b^2\right)\left(\frac{1}{2}a + 3b^2\right)\left(\frac{1}{4}a^2 + 9b^4\right)$$

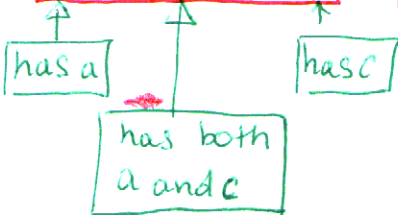
② Factor (fully): $x^2 - y^2 + x + y$

$$= (x - y)(x + y) + (x + y)$$

↑ could insert those here!

$$= (x + y)[(x - y) + 1] = (x + y)(x - y + 1)$$

③ $9a^4 + 6a^2c + c^2 - 9 = (3a^2 + c)^2 - 9 = (3a^2 + c)^2 - (3)^2$



$$= (3a^2 + c - 3)(3a^2 + c + 3)$$

④ $a^2 - b^2 - c^2 + 2bc = a^2 - (b^2 - 2bc + c^2) = (a)^2 - (b - c)^2$

$$= (a - (b - c))(a + (b - c))$$

$$= (a - b + c)(a + b - c)$$