

### 3) Difference of Squares

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

$$\text{since: } (a+b)(a-b) = a^2 - \cancel{ab} + \cancel{ab} - b^2$$

$$= a^2 - b^2$$

Factor:

$$1) x^2 - 25 = (x+5)(x-5)$$

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

$$3) x^2 - 7 = (x+\sqrt{7})(x-\sqrt{7})$$

$$4) (2x+1)^2 - 36 = \left[ \overset{a}{(2x+1)} + \overset{b}{6} \right] \left[ \overset{a}{(2x+1)} - \overset{b}{6} \right]$$

$$= (2x+7)(2x-5)$$

$$5) (3x+5)^2 - (2x+1)^2 = \quad \text{*watch signs!}$$

$$\left[ (3x+5) + (2x+1) \right] \left[ (3x+5) - (2x+1) \right]$$

$$(5x+6)(x+4)$$

Note:  $a^2 + b^2$  is **NOT** factorable!