

9.7 "Special" Factors

$$(m+6)(m-6)$$

Signs different
Same #'s
Conjugates

$$m^2 - 6m + 6m - 36 \rightarrow m^2 - 36 \text{ or } m^2 + 0m - 36$$

$$(5x+1)^2 \rightarrow 2 \text{ of em!}$$

$$(5x+1)(5x+1)$$

$$25x^2 + 5x + 5x + 1$$

$$25x^2 + 10x + 1$$

$$(3x-7)(3x+7)$$

Signs different
Same #'s

$$9x^2 + 21x - 21x - 49 \rightarrow 9x^2 - 49$$

$$(2y-3)(2y-3)$$

* exactly the same

$$4y^2 - 6y - 6y + 9$$

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

Factor each

① $64c^2 - 9$

Think: $64c^2 + 0c - 9$
* 64 & 9 are perfect squares

$$\frac{64c^2}{8c \cdot 8c} - \frac{9}{3 \cdot 3}$$

$$(8c+3)(8c-3)$$

- 1² = 1
- 2² = 4
- 3² = 9
- 4² = 16
- 5² = 25
- 6² = 36
- 7² = 49
- 8² = 64
- 9² = 81

② $49x^2 - 28x + 4$

* 49 & 4 are perfect squares
 $7x \cdot 7x$ $2 \cdot 2$ & $-2 \cdot -2$

$$(7x-2)(7x-2) \therefore$$

$$\text{OK } (7x-2)^2 \therefore$$

Homework: Factor

① $x^2 - 25$

② $81c^2 - 4$

③ $y^2 - 10y + 25$

④ $49a^2 + 14a + 1$

⑤ $9t^2 - 12t + 4$