

Ch 9.7

Factoring Special Cases

+ Perfect-Square Trinomials

$$\text{RULE: } a^2+2ab+b^2 = (a+b)(a+b) = (a+b)^2$$

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

Recognizing a perfect-square tri:

- The 1st & last terms are perfect squares. Variable exponents are divisible by 2.
- The middle term is twice the product of the roots of the 1st & last terms.

* You can still use previous factoring methods to factor. Foil to check answer.

Examples: $y^2 - 6y + 9$

$$\begin{array}{cc} y & 3 \\ 2(3*y) & = 6y \end{array}$$

so $(y - 3)^2$

$$4m^2 - 36m + 9$$

$$\begin{array}{cc} 2m & 9 \\ 2(2m*9) & = 36m \end{array}$$

$(2m - 9)^2$

+
– **Try some**

Factor each expression.

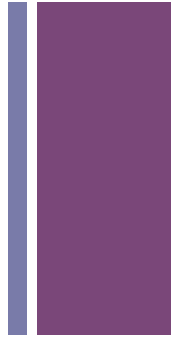
1. $n^2 + 8n + 16$

2. $b^2 + 16b + 64$

3. $y^2 - 16y + 64$

4. $4x^2 + 36x + 81$

5. $9n^2 - 12n + 4$





Difference of Two Squares

$$\text{RULE: } a^2 - b^2 = (a+b)(a-b)$$

If the 1st & last terms are perfect squares & the sign is a minus then you have a Difference of 2 Squares. Variable exponents are divisible by 2.

Examples: $d^2 - 49$ $9v^4 - 4w^6$

$$d \quad 7 \qquad \qquad \qquad 3v^2 \quad 2w^3$$

So $(d+7)(d-7)$ $(3v^2+2w^3)(3v^2-2w^3)$

Sometimes you have to factor out a GCF 1st.

Examples: $8y^2 - 50$ GCF: 2 $2(4y^2 - 25)$

$$2y \quad 5$$

So $2(2y+5)(2y-5)$

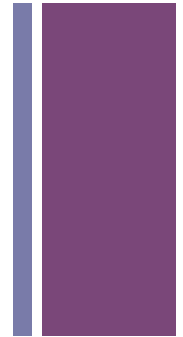
+
– Try some

Factor each expression. *bonus pts

1. $x^2 - 36$

2. $b^2 - 100$

3. $25y^2 - 64$



4. $4w^2 - 49$

5. $3c^2 - 75$

*6. $32x^4 - 2$