

## Notes: 12.5.D1 ~ Special Products

**Find each product.**

1)  $(r + 2)(r - 2)$

2)  $(k - 8)(k + 8)$

3)  $(2n - 9)(2n + 9)$

4)  $(5x - 3)(5x + 3)$

5) What do you observe about the TERMS of the binomial FACTORS?

6) What do you observe about the TERMS of the PRODUCT?

7) This is a special product known as the Difference of Two Squares (D.O.T.S). Both terms are perfect squares; difference means subtraction. A difference of two squares can be factored using a pattern.

$$a^2 - b^2 = \underline{\hspace{10em}}$$

**Factor each polynomial completely. Remember to look for a GCF first!**

8)  $4p^2 - 1$

9)  $49v^2 - 4$

10)  $m^2 - 4$

11)  $16m^2 - 9$

12)  $54n^2 - 6$

13)  $72v^2 - 50$

**Find each product.**

14)  $(3n - 4)(3n - 4)$

15)  $(v - 6)(v - 6)$

16)  $(n + 7)(n + 7)$

17)  $(2x + 1)(2x + 1)$

18) What do you observe about the TERMS of the binomial FACTORS?

19) What do you observe about the TERMS of the PRODUCT?

20) This is a special product known as a Perfect Square Trinomial. The first and last terms are positive perfect squares. The middle term is twice the product of  $ab$ ;  $a$  is the square root of the first term and  $b$  is the square root of the last term.

A perfect square trinomial can be factored using a pattern.

$$a^2 + 2ab + b^2 = \underline{\hspace{2cm}} \quad \text{OR} \quad a^2 - 2ab + b^2 = \underline{\hspace{2cm}}$$

**Factor each polynomial completely. Remember to look for a GCF first!**

21)  $16n^2 - 72n + 81$

22)  $100b^2 + 60b + 9$

23)  $81p^2 - 90p + 25$

24)  $4v^2 + 28v + 49$