

6.5 Special Product of Binomials

Recall: FOIL - Used to Multiply Binomials

Examples:

1. $(x+3)(x-3)$

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

$$x^2 - 3x + 3x - 9$$

$$\boxed{x^2 - 9}$$

3. $(m+7)(m-7)$

$$m^2 - 49$$

2. $(a-6)(a+6)$

$$a^2 - 36$$

Product of a sum and difference

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

Examples:

4. $(x-9)(x+9)$

$$x^2 - 81$$

5. $(m-4)(m+4)$

$$m^2 - 16$$

6. $(3x-2)(3x+2)$

$$9x^2 - 4$$

7. $(5g+3)(5g-3)$

$$25g^2 - 9$$

Perfect Square Trinomials

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

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

Examples:

8. $(x+3)^2$

$$x^2 + 6x + 9$$

9. $(y-6)^2$

$$(y-6)(y-6)$$

$$y^2 - 12y + 36$$

10. $(3a-2)^2$

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

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

11. $(2n+5)^2$

$$4n^2 + 20n + 25$$

*** May always go back to the Foil

Mixed Examples:

12. $(4x-2y)^2$

$$16x^2 - 16xy + 4y^2$$

13. $(0.5m+2)(0.5m-2)$

$$.25m^2 - 4$$

14. $(3c-7d)(3c+7d)$

$$9c^2 - 49$$

15. $(x-8)(x-8)$

$$x^2 - 16x + 64$$

16. $(x^3+2y)^2$

$$x^6 + 4x^3y + 4y^2$$

17. $(a-4)(a+4)(a^2+16)$

$$(a^2-16)(a^2+16)$$

$$a^4 - 256$$

HOMEWORK

Worksheet - HW 6.5