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| \*Learning Target: |
| \*Critical Content: |

-When we multiply binomials together, they follow certain patterns.

**Square of a Sum \_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Square of a Difference \_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Product of a Sum and Difference \_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Ex:$\left(5x+4\right)^{2}$ Ex: $\left(4x-3y\right)^{2}$

Ex: $\left(c+5d\right)^{2}$ Ex: $\left(4p-8\right)^{2}$

Ex: $(3x^{2}+6)(3x^{2}-6)$ Ex: $(7n-4)(7n+4)$

Ex: Each edge of a cube of Aluminum is 4cm less than each edge of a cube of copper. Write an equation to model the surface area of the aluminum cube.

Ex: Maggie has a garden that is *g* feet long and *g* feet wide. He wants to add 3 ft to the length and to the width.
a) Model the area of the garden by using the square of a binomial.

b) Find the square of the binomial from part a.

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| **Square of a Sum** |  |
| **Square of a Difference** |  |
| **Product of a Sum and Difference** |  |
| **Find each product. Try to use your shortcut rules from above instead of FOILing.** |
| **Square of a Sum** | 1) $(a+10)(a+10)$ | 2) $\left(h+7\right)^{2}$ | 3) $\left(2b+3\right)^{2}$ |
| 4) $\left(x+6\right)^{2}$ | 5) $\left(9+2y\right)^{2}$ | 6) $\left(7x+3y\right)\left(7x+3y\right)$ |
| **Square of a Difference** | 7) $\left(b-6\right)\left(b-6\right)$ | 8) $\left(5t-2\right)^{2}$ | 9) $\left(8h-3n\right)^{2}$ |
| 10) $\left(8-m\right)^{2}$ | 11) $\left(9-3y\right)^{2}$ | 12) $\left(t-8\right)\left(t-8\right)$ |
| **Product of a Sum and Difference** | 13) $(u+3)(u-3)$ | 14) $(b+7)(b-7)$ | 15) $\left(2+x\right)\left(2-x\right)$ |
| 16) $(2q+5r)(2q-5r)$ | 17) $(10x-2)(10x+2)$ | 18) $\left(3a^{2}-7b\right)\left(3a^{2}+7b\right)$ |
| **Mixed Practice!** | 19) $\left(5y^{2}+2\right)^{2}$ | 20) $(x-2)(x+2)$ | 21) $\left(3y-5\right)^{2}$ |
| 22) $(7m+1)(7m-1)$ | 23) $(8y+3x)(8y+3x)$ | 24) $\left(9+2x\right)^{2}$ |
| 25) $\left(y-3\right)^{2}$ | 26) $(7m^{2}-2)(7m^{2}+2)$ | 27) $(4r-2z^{3})(4r-2z^{3})$ |
| 28) The length of a rectangle is represented by the expression 3x + 2, and the width is also represented by 3x + 2. Find the area of this rectangle. |