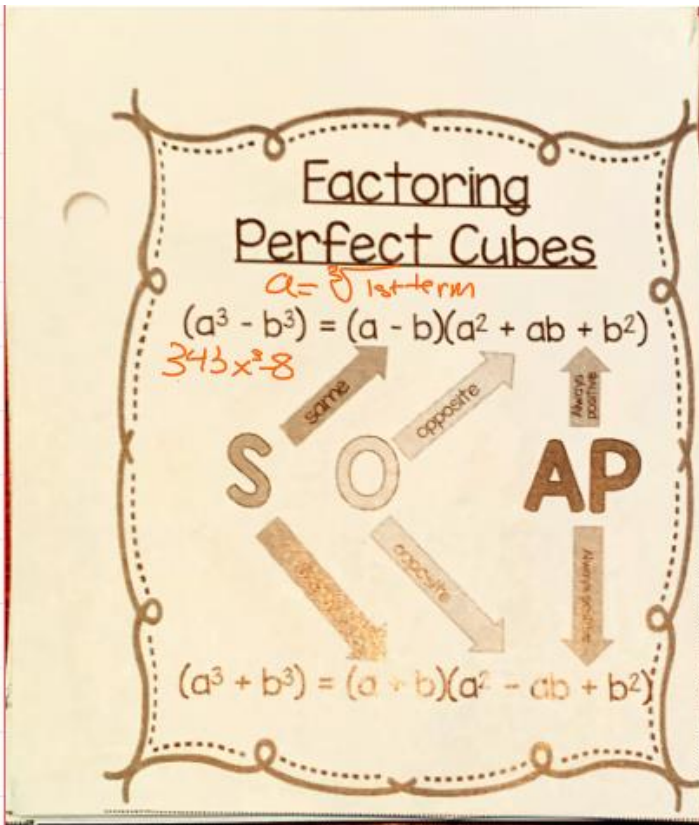


Today we learned about factoring sum of cubes and difference of cubes. We found that it is simply a pattern that can be followed and to know SOAP (Same Opposite Always Positive) to remember the signs. Below are the notes and the practice/homework.



$$1^3 = 1$$

$$2^3 = 8$$

$$3^3 = 27$$

$$4^3 = 64$$

$$5^3 = 125$$

$$6^3 = 216$$

$$7^3 = 343$$

$$8^3 = 512$$

$$9^3 = 729$$

$$10^3 = 1000$$

$$a = \sqrt[3]{\text{1st term}}$$

$$b = \sqrt[3]{\text{2nd term}}$$

Ex. 1  $27x^3 - 8$   
 $a = 3x \quad b = 2$

$$(27x^3 - 8) = (3x - 2)(9x^2 + 6x + 4)$$

S    O    A    P  
 $(3x)$      $(3x \cdot 2)$      $(2)$

Ex. 2  $125a^3 + 64$

$$a = 5a \quad b = 4$$

$$(5a + 4)(25a^2 - 20a + 16)$$

$(5a)^2$      $(5a \cdot 4)$      $(4)^2$

## Difference of Two Square/Sum and Diff of Cubes

Date \_\_\_\_\_ Period \_\_\_\_\_

**Factor each completely.**

1)  $4a^2 - 1$

2)  $4n^2 - 25$

3)  $n^2 - 9$

4)  $25p^2 - 1$

5)  $4k^2 - 25$

6)  $n^2 - 1$

7)  $9p^2 - 1$

8)  $25x^2 - 1$

9)  $16n^2 - 25$

10)  $p^2 - 9$

$$11) m^3 - 216$$

$$12) x^3 - 8$$

$$13) x^3 + 64$$

$$14) 125x^3 + 8$$

$$15) m^3 - 27$$

$$16) 8x^3 + 27$$

$$17) m^3 + 1$$

$$18) 64x^3 - 1$$

$$19) u^3 - 64$$

$$20) 8m^3 + 1$$