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Region III | Division of City Schools | West District
MALABANIAS INTEGRATED SCHOOL 500132
Tamarind St., Clarkview Subd., Malabánias, Angeles City
School Year 2018-2019

NAME: _____
GRADE & SECTION: _____

SCORE: _____
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Factoring the Sum and Difference of Two Cubes

1st Quarter Worksheet #8

Sum of Two Cubes: $x^3 + y^3 = (x + y)(x^2 - xy + y^2)$
Difference of Two Cubes: $x^3 - y^3 = (x - y)(x^2 + xy + y^2)$

Here are the steps required for factoring the sum and difference of two cubes:

Step 1: Decide if the two terms have anything in common, called the greatest common factor or GCF. If so, factor out the GCF. Do not forget to include the GCF as part of your final answer.

Step 2: Get the cube root of the 1st term, then the 2nd term to get the binomial factor.

Step 3: To get the 1st term of the trinomial factor, square the 1st term of the binomial factor.

Step 4: Next, multiply the terms of the binomial factor to create the middle term of the trinomial factor. Signs are opposite.

Step 5: Finally, get the square of the 2nd term of the binomial to create the last term of the trinomial.

Find the factors of each expression.

1. $x^3 + 8$
 $= (x + 2)(x^2 - 2x + 4)$

2. $y^3 - 125$
 $= (y - 5)(y^2 + 5y + 25)$

3. $a^3 + 216$
 $= (a + 6)(a^2 - 6a + 36)$

4. $b^3 - 64$
 $= (b - 4)(b^2 + 4b + 16)$

5. $c^3 + 27$
 $= (c + 3)(c^2 - 3c + 9)$

6. $m^3 - 1$
 $= (m - 1)(m^2 + m + 1)$

7. $n^3 + 343$
 $= (n + 7)(n^2 - 7n + 49)$

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

9. $27y^3 + 125$
 $= (3y + 5)(9y^2 - 15y + 25)$

10. $64a^3 - 216$
 $= (4a - 6)(16a^2 + 24a + 36)$

11. $8b^3 + 27c^3$
 $= (2b + 3c)(4b^2 - 6bc + 9c^2)$

12. $64m^3 - 8n^3$
 $= (4m - 2n)(16m^2 + 8mn + 4n^2)$

13. $3a^3 + 24b^3$
 $= 3(a^3 + 8b^3)$
 $= 3(a + 2b)(a^2 - 2ab + 4b^2)$

14. $2x^3 - 54y^3$
 $= 2(x^3 - 27y^3)$
 $= 2(x - 3y)(x^2 + 3xy + 9y^2)$

Factoring A Sum Difference Of Cubes Answer Key

Mary Jane Sterling



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