

3.7 Factoring a Sum and Difference of Cubes



"I can factor fully any polynomial, including a Sum and Difference of Cubes. I can apply what I have learned in familiar and unfamiliar settings."

Sum of Cubes:

Difference of Cubes:

Apply the Factor Theorem to factor completely:

a) $y^3 + 8$

b) $8x^3 - 27$

Predict a formula for a factored Difference of Cubes: $a^3 - b^3$

Predict a formula for a factored Sum of Cubes: $a^3 + b^3$

The Factor Theorem can be applied to any expression. However, it may be more faster to use one of the new formulae if one recognizes the expression as a sum/difference of cubes. Hence, the following algorithm is suggested, from now on, when required to factor:



Is the expression a sum/difference of cubes?
If so, use the appropriate formula. Otherwise,
apply the Factor Theorem directly.

MathSIP! pg 182 #2acegi, 3, 4acegi, 5ac, 6
Are you factoring fully?