

Factoring Difference of Cubes

$$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$$

Use the difference of cubes formula to factor the following. Don't forget to factor out the GCF if necessary.

1. $x^3 - 8$ $= (x - 2)(x^2 + 2x + 4)$	2. $t^3 - 1$ $= (t - 1)(t^2 + t + 1)$	3. $27 - y^3$ $= (3 - y)(9 + 3y + y^2)$
4. $8t^3 - 27$ $= (2t - 3)(4t^2 + 6t + 9)$	5. $1 - 64x^3$ $= (1 - 4x)(1 + 4x + 16x^2)$	6. $2y^3 - 54$ $= 2(y - 3)(y^2 + 3y + 9)$
7. $24t^4 - 3t$ $= 3t(2t - 1)(4t^2 + 2t + 1)$	8. $8 - 64t^3$ $= 8(1 - 2t)(1 + 2t + 4t^2)$	9. $40x^2y - 135x^2y^4$ $= 5x^2y(2 - 3y)(4 + 6y + 9y^2)$
10. $x^6 - 27$ $= (x^2 - 3)(x^4 + 3x^2 + 9)$		