

Examples:


3. $64y^3 - 1$

4. $512 + 27k^3$

5. $216m^9 + 125$
 $(6m^3)^3 (5)^3$

6. $64 - 343h^3$
 $(4)^3 (7h)^3$

$$(6m^3 + 5)(30m^6 - 30m^3 + 25) \quad (4 - 7h)(16 + 28h + 49h^2)$$



II. GCF Revisited

REMEMBER!! The first step to factoring is LOOK FOR A GCF and factor out!

7. $3d^3 - 81$

8. $54p^3 + 2$

9. $6w^4 + 48w$ GCF: $6w$

$$6w(w^3 + 8)$$

$(w)^3 (2)^3$

$$6w(w+2)(w^2-2w+4)$$

10. $16x^5 - 250x^2$

GCF = $2x^2$

$$2x^2(8x^3 - 125)$$

$(2x)^3 (5)^3$

$$2x^2(2x-5)(4x^2+10x+25)$$

III. Factoring by Grouping

11. $x^3 - 3x^2 + 5x - 15$ 12. $f^3 - f^2 - 9f + 9$

13. $(27q^4 - 27q^3) + 8q - 8$ 14. $(5t^4 + 5t^3) - 20t^2 - 20t$

$27q^3(q-1) + 8(q-1)$ $5t^3(t+1) - 20t(t+1)$

$(q-1)(27q^3+8)$ $(t+1)(5t^3-20t)$

$(q-1)(3q)^3(2)^3$ GCF = $5t$

$(q-1)(3q+2)(q^2-6q+4)$ $5t(t+1)(t^2-4)$

diff. of squares

$5t(t+1)(t+2)(t-2)$

IV. Quadratic Techniques

A. Trinomials $ax^n + bx^{\frac{n}{2}} + c$

(exponent of middle term is half the exponent on leading term)

15. $4x^4 - 17x^2 + 4$

16. $2h^4 - 9h^2 + 4$

Sum -9	prod. 8
-1 + -8	-1 · -8

$$\frac{-1}{2} \cdot \frac{-8}{2} = \frac{-4}{1}$$

$$(2h^2 - 1)(1h^2 - 4)$$

$$(2h^2 - 1)(h - 2)(h + 2)$$