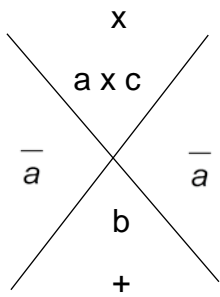


Precalculus Preview
Factoring

Factoring Polynomials

Factoring polynomials involves breaking up a polynomial into simpler terms (the factors) such that when the terms are multiplied together they equal the original polynomial.

1. Factor out any GCF.
2. Look at the number of terms to determine which of the following techniques can be used.

# of Terms	Techniques	Example
2	Difference of Squares $(a + b)(a - b)$	$16x^2 - 49$
2	Difference of Cubes $(a - b)(a^2 + ab + b^2)$	$27x^3 - 64$
2	Sum of Cubes $(a + b)(a^2 - ab + b^2)$	$16x^4 - 2x$
3	X chart and Bottoms Up 	$3x^2 + 8x - 3$
4	Grouping	$x^3 + 3x^2 - 4x - 12$

Factor completely.

1. $x^3 - 27$

2. $8 + 64x^3$

3. $4x^2 - 81$

4. $y^4 - 5y^2 + 6$

5. $25x^2 - y^2$

6. $9x^2 - 6x + 1$

9. $4x^2 + 12xy + 9y^2$

10. $49x^6 - 25y^2z^4$

11. $4y^2 + 8y + 3$

12. $2x^2 - 5x - 3$

13. $4x^2 + x + 2xy + 2y$

14. $3x^2 + 9x^3 + 6x^7 + 18x^8$

15. $8y^3 + 125$

16. $-x^3 - 8$

17. $1029yx^3 + 24y^2$

18. $250x^4 + 128x$

19. $32x^3y - 50xy^3$

20. $200x^3 - 18x$