

Factoring Review

GCF's and Grouping

1. $8x^2y - 4xy^3$

2. $-4x^3 - 8x^2 + 24x$

3. $3x(a+2b) + y(a+2b)$

4. $12x^2(3x-y)^2 - 6x(3x-y)$

5. $24x^3y^4 - 12x^2y^3 - 8xy^5$

6. $ax - 2xb + ay - 2by$

7. $x^3 - 4x^2 + 2xy - 8y$

8. $2bx^3 - 4x^3 - 8bx^2y + 16x^2y$

Factoring Trinomials

9. $x^2 - 2x - 3$

10. $x^2 - 5x + 6$

11. $x^2 - 7x - 60$

12. $2x^2 - 4x - 96$

13. $-x^2 - 17x - 72$

14. $3x^2 + 10x - 8$

15. $5x^2 - 14x - 3$

16. $2x^2 + 9x - 5$

17. $6x^2 - 19x - 20$

18. $-4x^3 + 10x^2 + 6x$

19. $12x^2 + xy - 35y^2$

20. $20a^3 - 42a^2b - 20ab^2$

Factoring Binomials

$$a^2 - b^2 = (a+b)(a-b) \quad a^2 + b^2 \Rightarrow \text{prime (unless a GCF)}$$

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

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

21. $x^2 - 36$

22. $4x^2 - 81$

23. $16x^2 - 25y^2$

24. $16x^4 - 1$

25. $18x^2 - 50$

26. $x^3 - 64$

27. $x^3 + 27$

28. $8x^3 - 125y^3$

29. $54x^3y - 16y^4$

30. $(x+1)^3 + y^3$

"Harder" Grouping Problems

31. $x^2y + 2x^2 - 4y - 8$

32. $4x^3 + 8x^2 - 9x - 18$

33. $x^2 + 2x + 1 - 4y^2$

34. $4x^2 - 20xy + 25y^2 - 81$

35. $5x^3y - 40y - 6x^3 + 48$

Mixed Review of Factoring

36. $25a^2 - b^2$

37. $x^2 - 10x + 9$

38. $36x^2 - 60x + 25$

39. $16x^3y - 54y^4$

40. $14x^2 - 41x + 15$

41. $3x^2 - 5x + 1$

$$42. \quad x^3 - 2x^2 - 16x + 32$$

$$43. \quad -5x^2 + 25x + 30$$

$$44. \quad 10x^2 - 17x - 20$$

$$45. \quad 4x^4 - 25x^2 + 36$$

$$46. \quad 30x^3 - 12x^2y + 20x^2y - 18x^2$$