Precalculus   Algebra Review Worksheet #2 Factoring   page 1 _____

Factor each of the following completely.

- **Combination Factoring - Factor the common monomial first, then the difference of two squares.**

1. $2x^3 - 18x = $ _____

2. $9x^4 - 36x^2 = $ _____

3. $-5x^3 + 125x = $ _____

4. $7x^3 - 7 = $ _____

- **Factoring Binomials - Difference of Two Cubes: $A^3 - B^3 = (A - B)(A^2 + AB + B^2)$**

5. $x^3 - 27 = $ _____

6. $8x^3 - 125 = $ _____

7. $64x^3 - 1 = $ _____

8. $27x^3 - 1000 = $ _____

- **Factoring Binomials - Sum of Two Cubes: $A^3 + B^3 = (A + B)(A^2 - AB + B^2)$**

9. $x^3 + 8 = $ _____

10. $x^3 + 1 = $ _____

11. $125x^3 + 27 = $ _____

12. $27x^3 + 64 = $ _____

- **Combination Factoring - Factor the common monomial first, then the sum or difference of cubes.**

13. $8x^4 - 64x = $ _____

14. $-3x^5 - 81x^2 = $ _____

- **Combination Factoring - Factor the difference of squares first, then the sum and difference of cubes.**

15. $x^6 - 64 = $ _____

16. $x^6 - 1 = $ _____

Factor each of the following completely.

- **Factoring Technique - Factoring by Grouping (polynomials with four terms)**

17. $x^3 + 2x^2 + 3x + 6 = $ _____

18. $6x^3 - 9x^2 + 4x - 6 = $ _____

19. $x^3 + 2x^2 - 9x - 18 = $ _____

20. $2x^4 + 3x^3 + 16x + 24 = $ _____

- **Factoring Other Trinomials - Perfect Squares (Factor them as you would any other trinomial.)**

21. $x^2 - 6x + 9 = $ _____

22. $9x^2 + 30x + 25 = $ _____

23. $x^2 + 20x + 100 = $ _____

24. $49x^2 - 14x + 1 = $ _____

- **Factoring Other Trinomials - 4th degree trinomials (Factor them into two 2nd degree binomials.)**

25. $x^4 + 7x^2 + 10 = $ _____

26. $3x^4 - 7x^2 - 6 = $ _____

- **Factor completely.**

27. $4x^4 - 37x^2 + 9 = $ _____

28. $3x^4 - 74x^2 - 25 = $ _____

29. $-3x^5 + 9x^3 + 12x = $ _____