Name: _____

Factoring – Distribution, GCF, Diff of Squares, and Grouping

Simplify each product. Write in standard form. All work should be shown on another sheet of paper.

1. $4(a-3)$ **2.** $-5(x-2)$ **3.** $-3x^2(x^2+3x)$

4. $4x^3(x-3)$ **5.** $(x+2)(2x^2-3x+2)$ **6.** $3x(x^2-5x-3)$

7. $-x^2(-2x^2+3x-2)$ **8.** $4d^2(d^2-3d-7)$ **9.** $(2n-3)(n^2-2n+5)$

10. $(2x^2-9x+11)(2x+1)$ **11.** $(b+8)(2b-5)$ **12.** $4x(5x-6)$

13. $(x+5)(x+4)$ **14.** $(3w+4)(2w-1)$ **15.** $(x+3)(2x-5)$

16. $(3s-4)(s-5)$ **17.** $(5x-3)(4x+2)$ **18.** $(5x-2)(x+3)$

Square the binomial. Write in standard form. All work should be shown on another sheet of paper.

19. $(x+6)^2$ **20.** $(x-7)^2$ **21.** $(2x+4)^2$

22. $(5x-9)^2$ **23.** $(6x+3)^2$ **24.** $(x-1)^2$

Factor the following by finding the GCF. All work should be shown on another sheet of paper.

25. $8x-4$ **26.** $14d-2$ **27.** $15x+45x^2$

28. x^2+3x **29.** $6h^2-8h$ **30.** $12n^3-8n$

31. $9-27x^3$ **32.** x^3-5x^2 **33.** $21x^3+56x^4$

34. $3z^4-15z^3-9z^2$ **35.** $3y^3-8y^2-9y$ **36.** $16m^5-8m^4+12m^2$

Factoring – Quadratics

Factor each expression. All work should be shown on another sheet of paper. ($a \neq 1$)

1. $2x^2+3x+1$ **2.** $2n^2+n-6$ **3.** $3x^2-x-4$

4. $7n^2+9n+2$ **5.** $2y^2-9y-5$ **6.** $3x^2-10x+8$

7. $5x^2+2x-3$ **8.** $10x^2+3x-4$ **9.** $5x^2-22x+8$

10. $4y^2-11y-3$ **11.** $8x^2+65x+8$ **12.** $2y^2+9y+7$

13. $2x^2+5x-3$ **14.** $5x^2-11x+2$ **15.** $15x^2-19x+6$