Name: _____ Date: _____

Unit 8: Factoring
Study Guide

Greatest Common Factor (GCF)

Factor each polynomial completely.

1) $9x^2 + 12x^3$

2) $-10x^9 - 30y - 30x$

3) $28xy - 32y^2 - 12y$

4) $54a^{12}b^3c^2 + 6a^6b^5c^8 + 24a^6b^4c^2 + 6a^6b^3c^2$

Factoring Trinomials, $a = 1$

Factor each trinomial completely. *Always check for a GCF*

5) $x^2 + 7x + 10$

6) $n^2 + 11n + 18$

7) $4x^2 - 60x + 200$

8) $3x^2 + 12x - 36$

Factoring Trinomials, $a > 1$

Factor each trinomial completely. (Use the Slip and Slide method) *Always check for a GCF*

9) $-9n^2 - 30n - 16$

10) $24b^2 - 117b - 162$

11) $5x^2 + 58x + 80$

12) $-15r^2 + 81r + 54$

Factoring by a Difference of Two Squares, DOTS

Factor each binomial completely. *Always check for a GCF*

13) $25x^2 - 4y^2$

14) $4x^2 - 36y^2$

15) $125u^2 - 20v^2$

16) $4a^4 + 9b^4$

17) $2x^4 - 50y^4$

Factor by Grouping
Factor each polynomial completely. *Always check for the GCF*

18) $10v^3 - 14v^2 + 35v - 49$

19) $56p^3 - 7p^2 + 24p - 3$

20) $35x^3 + 56x^2 - 10x - 16$

21) $b^4 - 10a^2b^2 + 25a^4$

Mixed Factoring Practice
Factor each polynomial completely.

22) $4x^3 + 12x^2 - 25x - 75$

23) $54x^3y - 18x^2y^2 + 27xy^2$

24) $3k^2 - 57k + 180$

25) If the area of a rectangle can be represented by $(x^2 - 5x - 14)$, what two expressions could represent the dimensions of the rectangle?