

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**GCF Factoring**

1. $4x^2 - 16x$ $4x(x-4)$	2. $3x^5 + 27x^2$ $3x^2(x^3 + 9)$
3. $12x^2 + 20x - 32$ $4(3x^2 + 5x - 8)$	4. $8x^5 - 28x^2$ $4x^2(2x^3 - 7)$

**Difference of Two Squares NOTES:**

\* Subtraction

\* Binomial (2 terms)

\* Perfect Squares  $\rightarrow$  1, 4, 9, 16, 25...

$$a^2 - b^2$$

$$(a+b)(a-b)$$

5. $x^2 - 16$ $(x+4)(x-4)$	6. <del>6000</del> $36x^2 - 121$ $(6x-11)(6x+11)$
7. $25x^2 - 16$ $(5x-4)(5x+4)$	8. $4x^2 - 81y^2$ $(2x+9y)(2x-9y)$

**Practice using Difference of Two Squares:**

9. $x^2 - 25$	10. $x^2 - 121$
11. $x^2 - 81$	12. $3x^2 - 48$
13. $4x^2 - 49$	14. $36x^2 - 1$

**Sum of Squares NOTES:**

\* Addition

$$(a^2 + b^2)$$

\* Binomial

\* Perfect Squares

$$(a+bi)(a-bi)$$

15. $x^2 + 64$ $(x+8i)(x-8i)$	16. $x^2 + 9$ $(x+3i)(x-3i)$
17. $x^2 + y^2$ $(x+yi)(x-yi)$	18. $9x^2 + 121$ $(3x+11i)(3x-11i)$

**Practice using Sum of Squares:**

19. $x^2 + 4$	20. $x^2 + 25$
21. $4x^2 + 81$	22. $2x^2 + 50$

**GROUPING NOTES: \*4 terms\***

- 1) Group 1<sup>st</sup> 2 terms + 2<sup>nd</sup> 2 terms ( )
- 2) Pull out GCF from each
- 3) Write GCFs in ( ) + matching set ( ) once!
- 4) Look for DOTS/SOTS

23. $(x^3 - 2x^2) - 9x + 18$ $x^2(x-2) - 9(x-2)$ $(x^2-9)(x-2)$ $(x+3)(x-3)(x-2)$	24. $(2x^3 - 8x^2) + 3x - 12$ $2x^2(x-4) + 3(x-4)$ $(2x^2+3)(x-4)$
25. $(4x^3 + 16x^2) - x - 4$ $4x^2(x+4) - 1(x+4)$ $(4x^2-1)(x+4)$ $(2x+1)(2x-1)(x+4)$	26. $(x^3 - x^2) - 4x + 4$ $x^2(x-1) - 4(x-1)$ $(x^2-4)(x-1)$ $(x+2)(x-2)(x-1)$