NAME Mr. Morton DATE

7-3 **Practice Worksheet**

Factoring by Grouping

Complete. In each exercise, the blank represents the same expression.

1. $(6ab + 4a) + (3b + 2) = 2a(\underline{3b+2}) + (\underline{3b+2}) = (3b+2)(2a+1)$

2. $(2x^2 - 8xz) + (2xy - 8yz) = 2x(\underline{x-4z}) + 2y(\underline{x-4z}) = (x-4z)(2x+2y)$

Factor each polynomial. Check by using FOIL.

3. $6mn - 9m - 4n + 6$
$(3m-2)(2n-3)$

4. $2x^2y + 6xy - x - 3$
$(2xy-1)(x+3)$

5. $6xy^2 - 3xy + 8y - 4$
$(3xy+4)(2y-1)$

6. $8x^2 + 2xy + 12x + 3y$
$(2x+3)(4x+y)$

7. $2e^2f - 12ef + 3e - 18$
$(2ef+3)(e-6)$

8. $6cd^2 - 8cd - 9d + 12$
$(2cd-3)(3d-4)$

9. $4r^2s - 8rs - 3r + 6$
$(4rs-3)(r-2)$

10. $4k + 12 + k^2 + 3k$
$(4+k)(k+3)$

11. $2uv - u^2v - 6 + 3u$
$(uv-3)(2-u)$

12. $xz + xw + yz + yw$
$(x+y)(z+w)$

13. $2ac + ad + 6bc + 3bd$
$(a+3b)(2c+d)$

14. $2c^2d + 9c + 6cd + 3c^2$
$2c^2d + 6cd + 3c^2 + 9c$
$(2cd+3c)(c+3) \rightarrow c(2d+3)(c+3)$

15. $z^3 - 6 + 2z - 3z^2$
$z^3 - 3z^2 + 2z - 6$
$(z^2+2)(z-3)$

16. $p^2q + pq - 1 - p$
$(pq-1)(p+1)$

17. $r^3s^2 - 2r^2s + 2rs - 4$
$(r^2s+2)(rs-2)$

18. $ac + bd + bc + ad$
$(a+b)(c+d)$

19. $m^3 - 5n + 5m - m^2n$
$(m^2+5)(m-n)$

20. $x^3 + xy^2 - x^2y - y^3$
$(x-y)(x^2+y^2)$

21. $6x^3 + 9x - 4x^2 - 6$
$(3x-2)(2x^2+3)$

22. $a^3 + b^2 + a^2b + ab$
$(a^2+b)(a+b)$

23. $c^2d^2 + xy + d^2x + c^2y$
$(c^2+x)(d^2+y)$

24. $3j - 5j^2 - 6k + 10jk$
$(j-2k)(3-5j)$

25. $3v^2 - 9v - wv + 3w$
$(3v-w)(v-3)$

26. $2xz - 6xy + 2yz - 6y^2$
$2(xz - 3xy + yz - 3y^2)$
$2(x+y)(z-3y)$