

8-2**Practice**
Multiplying and Factoring

Form K

Simplify each product.

1. $3w(w + 2)$

2. $(z + 5)2z$

3. $3m^2(4 + m)$

4. $2p(p^2 - 6p + 1)$

5. $-y(5y^3 - 3y^2 + 2y)$

6. $3a(-3a^2 + 2a - 7)$

7. $6x^3(3x^2 - x + 10)$

8. $-4h(-h^3 - 8h^2 + 2h)$

9. $4n(n^2 + 5n + 6)$

Find the GCF of the terms of each polynomial.

10. $16q + 32$

11. $4t^3 - 24t$

12. $32y - 24$

13. $x^3 + 3x^2 + 5x$

14. $5d^3 + 20d - 35$

15. $2m^3 + 10m^2 + 12m$

16. $7g^4 + 21g^3 - 14g^2$

17. $15z^3 + 3z^2 - 27z$

18. $33w^7 + 55w^5 - 22w^3$

Factor each polynomial.

19. $9t - 3$

20. $12j^3 + 28$

21. $72x^2 - 63x$

22. $12k^3 - 9k^2 + 6$

23. $30n^3 + 18n^2 + 54n$

24. $32z^4 - 80z^3 + 112z^2$

25. $12n^4 + 16n^3 + 20n^2$

26. $24y^6 + 36y^4 + 42y^2$

27. $7q^5 + 21q^3 - 49q$

8-2**Practice** (continued)

Form K

Multiplying and Factoring

28. You are painting a rectangular wall with length $5x^2$ ft and width $12x$ ft. There is a rectangular door that measures x ft by $2x$ ft that will not be painted. What is the area of the wall that is to be painted? Write your answer in factored form.

Simplify. Write in standard form.

29. $-3m(2m^2 - 5m + 10)$ 30. $-5t^2(-6t^3 + 12t)$ 31. $10x(-4x^2 + x - 3)$
32. $-2v(3v^3 - 6v^2 + 2v)$ 33. $5y(y + 2) - y(y - 3)$ 34. $-2b^2(-4b^2 + 3b)$

Factor each polynomial.

35. $13cd^3 + 39c^2d^2$ 36. $5x^3y^4 - 25xy^2$ 37. $42m^5n + 28m^4$
38. $36fg^2 + 54f^2g^4$ 39. $8s^8t^4 + 20s^4t^3$ 40. $12a^2b^5 + 156a^2b^3$

41. **Open-Ended** Write a quadratic monomial and a cubic trinomial. Then find their product and write it in standard form.

42. A rectangle has a length of $6x^3y^2 - 1$ and a width of $3xy + 2$. The formula for the perimeter of a rectangle is $P = 2l + 2w$, where l is the length and w is the width. What is the perimeter of the rectangle? Simplify your answer.