6-3 Practice
The Binomial Theorem

Expand each binomial.

1. $(x + 2)^4$ **2.** $(a + 2)^7$ **3.** $(x + y)^7$ **4.** $(d - 2)^9$

5. $(2x - 3)^8$ **6.** $(x - 1)^9$ **7.** $(2x^2 - 2y^2)^6$ **8.** $(x^5 + 2y)^7$

9. $(n - 3)^3$ **10.** $(2n + 2)^4$ **11.** $(n - 6)^5$ **12.** $(n - 1)^6$

13. $(2a + 2)^3$ **14.** $(x^2 - y^2)^4$ **15.** $(2x + 3y)^5$ **16.** $(2x^2 + y^2)^6$

17. $(x^2 - y^2)^3$ **18.** $(2b + c)^4$ **19.** $(3m - 2n)^5$ **20.** $(x^3 - y^4)^6$

Find the specified term of each binomial expansion.

21. third term of $(x + 3)^{12}$ **22.** second term of $(x + 3)^9$

23. twelfth term of $(2 + x)^{11}$ **24.** third term of $(x - 2)^{12}$

25. eighth term of $(x - 2y)^{15}$ **26.** seventh term of $(x - 2y)^6$

27. fifth term of $(x^2 + y^2)^{13}$ **28.** fourth term of $(x^2 - 2y)^{11}$

29. The term $126c^4d^5$ appears in the expansion of $(c + d)^n$. What is n?

30. The coefficient of the second term in the expansion of $(r + s)^n$ is 7. Find the value of n, and write the complete term.

State the number of terms in each expansion and give the first two terms.

31. $(d + e)^{12}$ **32.** $(x - y)^{15}$ **33.** $(2a + b)^5$

34. $(x - 3y)^7$ **35.** $(4 - 2x)^8$ **36.** $(x^2 + y)^6$

37. The side of a number cube is $x + 4$ units long. Write a binomial for the volume of the number cube. Use the Binomial Theorem to expand and rewrite the expression in standard form.