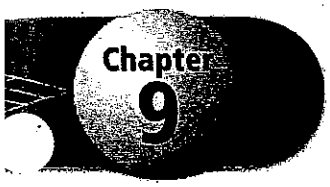
CH. 9A REVIEW
9.1-9.4



Chapter Review

Vocabulary

binomial (p. 457)
degree of a monomial (p. 457)
degree of a polynomial (p. 457)
factor by grouping (p. 496)
monomial (p. 456)
perfect-square trinomial (p. 490)
polynomial (p. 457)
standard form of a polynomial (p. 457)
trinomial (p. 457)

Reading Math
Understanding Vocabulary

Match the vocabulary term in the column on the left with the most accurate description in the column on the right.

1. binomial	**A.** a polynomial with two terms
2. degree of a monomial	**B.** a polynomial in which the terms decrease in degree from left to right and there are no like terms
3. monomial	**C.** a polynomial with two identical binomial factors
4. perfect-square trinomial	**D.** the sum of the exponents of the variables
5. standard form of a polynomial	**E.** an expression that is a number, a variable, or a product of a number and one or more variables

Take It to the NET
Online vocabulary quiz at www.PHSchool.com
Web Code: aej-0951

Skills and Concepts

9-1 Objectives

- To describe polynomials (p. 456)
- To add and subtract polynomials (p. 458)

The degree of a term with one variable is the exponent of the variable. A **polynomial** is one monomial or the sum or difference of two or more monomials. The **degree of a polynomial** is the same as the degree of the term with the highest degree. A polynomial can be named by its degree or by the number of its terms. You can simplify polynomials by adding the coefficients of like terms.

Write each polynomial in standard form. Then name each polynomial based on its degree and number of terms.

6. $5y + 2 - 6y^2 + 3y$
7. $1 + 9h^2$
8. $k^3 + 3k^5 + k - k^3$
9. $6t^3 + 9 + 8t + 7t^2 - 6t^3$
10. x^2y^2
11. $5 + x^2 + x^3$

12. Open-Ended Write a polynomial using the variable z. What is the degree of your polynomial?

Simplify. Write each answer in standard form.

13. $(-4b^5 + 3b^3 - b + 10) + (3b^5 - b^3 + b - 4)$
14. $(3g^4 + 5g^2 + 5) + (5g^4 - 10g^2 + 11g)$
15. $(3x^3 + 8x^2 + 2x + 9) - (-4x^3 + 5x - 3)$
16. $(2t^3 - 4t^2 + 9t - 7) - (t^3 + t^2 - 3t + 1)$
17. $(6y^2 + 3y + 5) - (2y^2 + 1)$
18. $(7w^5 - 7w^3 + 3w) - (5w^4 - w^2 + 3)$

CHAPTER 9A REVIEW

9.1-9.4

9-2 Objectives

- To multiply a polynomial by a monomial (p. 462)
- To factor a monomial from a polynomial (p. 463)

You can multiply a monomial and a polynomial using the Distributive Property. You can factor a polynomial by finding the greatest common factor (GCF) of the terms of the polynomial.

Simplify each product. Write in standard form.

19. $8x(2 - 5x)$ **20.** $5g(3g + 7g^2 - 9)$ **21.** $8t^2(3t - 4 - 5t^2)$

22. $5m(3m + m^2)$ **23.** $-2w^2(4w - 10 + 3w^2)$ **24.** $b(10 + 5b - 3b^2)$

Find the GCF of the terms of each polynomial. Then factor the polynomial.

25. $9x^4 + 12x^3 + 6x$ **26.** $4t^5 - 12t^3 + 8t^2$ **27.** $40n^5 + 70n^4 - 30n^3$

28. $2k^4 + 4k^3 - 6k - 8$ **29.** $3d^2 - 6d$ **30.** $10m^4 - 12m^3 + 4m^2$

31. $10v - 5$ **32.** $12w^3 + 8w^2 + 20w$ **33.** $18d^5 + 6d^4 + 9d^3$

34. Critical Thinking The GCF of two numbers x and y is 3. Can you predict the GCF of $4x$ and $4y$? Explain your answer.

35. Critical Thinking Amanda says the GCF of $8m^2n$ and $4mn$ is 4. Kris says the GCF is $4n$. Kim says the GCF is $4mn$. Which student is correct? Explain your answer.

9-3 and 9-4 Objectives

- To multiply binomials using FOIL (p. 467)
- To multiply trinomials by binomials (p. 469)
- To find the square of a binomial (p. 474)
- To find the difference of squares (p. 476)

You can use tiles or the Distributive Property to multiply polynomials. You can use the FOIL method (First, Outer, Inner, Last) to multiply two binomials.

Simplify each product. Write in standard form.

36. $(x + 3)(x + 5)$ **37.** $(5v + 2)(3v - 7)$ **38.** $(2b + 5)(3b - 2)$

39. $(k - 1)(-k + 4)$ **40.** $(p + 2)(p^2 + p + 1)$ **41.** $(4a - 1)(a - 5)$

42. $(y - 4)(y^2 - 5y - 2)$ **43.** $(3x + 4)(x + 2)$ **44.** $(-2h^2 + h - 1)(h - 5)$

45. $(q - 4)(q - 4)$ **46.** $(2k^3 + 5)^2$ **47.** $(8 - 3t^2)(8 + 3t^2)$

48. $(2m^2 + 5)(2m^2 - 5)$ **49.** $(w - 4)(w + 4)$ **50.** $(4g^2 - 5h^4)(4g^2 + 5h^4)$

51. Geometry A rectangle has dimensions $2x + 1$ and $x + 4$. Write an expression for the area of the rectangle as a product and as a polynomial in standard form.

52. Error Analysis Suppose a classmate claims that the difference between $(x^2 - y^2)$ and $(x - y)^2$ must be 0. Is your classmate correct? Explain your answer.

9-5 and 9-6 Objectives

- To factor trinomials (p. 481)
- To factor trinomials of the type $ax^2 + bx + c$ (p. 486)

Some quadratic trinomials are the product of two binomial factors. You can factor trinomials using tiles or by using FOIL. Factor any common monomial factors first.

Factor each expression.

53. $x^2 + 3x + 2$ **54.** $y^2 - 9y + 14$ **55.** $x^2 - 2x - 15$

56. $2w^2 - w - 3$ **57.** $b^2 - 7b + 12$ **58.** $2t^2 + 3t - 2$

59. $x^2 + 5x - 6$ **60.** $6x^2 + 10x + 4$ **61.** $21x^2 - 22x - 8$

62. $3x^2 + x - 2$ **63.** $15y^2 + 16y + 1$ **64.** $15y^2 - 16y + 1$