Name _____ Class _____ Date _____

Chapter Test — Form A

Chapter 9

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

1. $2x^3 - x^2 + 4x$
2. $y^2 + 3y + 6 - 4y^2 - 6y$
3. $8 - 6w - 12w - 8w^2 - 7 - 3w^3$
4. $6x^5 + 3x^3 - 7x^5 - 4x^3$

Simplify. Write each answer in standard form.

5. $(x^2 - 3x + 5) + (x^2 + 2x - 3)$
6. $(2x^2 + 6x + 7) + (3x^2 + 3x - 5)$
7. $(3x^2 + 4x - 10) - (2x + 7 - 4x^2)$
8. $(8x - 4x^2 + x^3) - (8x^2 + 4x^3 - 7x)$
9. **Open-Ended** Write a trinomial with degree 5.

Simplify each product. Write in standard form.

10. $8x(3x + 4 - x^2)$
11. $-y(8y^2 + y)$
12. $7x(3 - x + 6x^3)$
13. $5y(y^5 + 8y^3)$
14. $6x(x^2 + 2x + 1)$
15. $(y + 4)(y + 3)$
16. $(a + 3)(a - 1)$
17. $(2y - 8)(y - 4)$
18. $(3x + 4)(5x - 9)$
19. $(x - 1)(x^2 + 6x + 4)$
20. $(2x^2 - 6x - 5)(3 - x)$
21. $(8x - 7)(3x + 2)$

Write the GCF of each polynomial.

22. $12x^3 + 6x^2 - 3x$
23. $18x^2 + 16x - 12x^3$
24. $6y^2 - 12y^3 + 36y^4$
25. $-10y^3 + 8y^2 - 20y$
26. **Writing** A student commented, "Factoring undoes the distributive property." What do you think the student meant? Explain and give an example.

Write an expression for each situation as a product and in standard form.

27. A settling pond at a sewage treatment facility is rectangular. The length of the pond is 15 ft more than 4 times its width w. What is the area of the pond?

Name _____ Class _____ Date _____

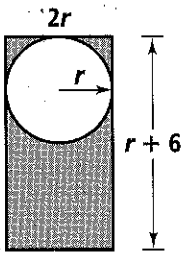
Chapter Test (continued) Form A

Chapter 9

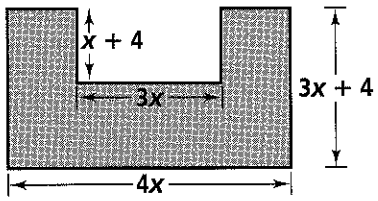
28. The length of an airplane hangar is 20 ft less than 4 times its height h. The width of the hangar is 10 ft more than 2 times its height. What polynomial expression represents the volume of the hangar?

Geometry Write an expression for the area of each shaded region. Write your answer in simplest form.

29.



30.



Factor each expression.

31. $x^2 - 6x + 5$

32. $y^2 + 18y + 81$

33. $16x^2 + 48x + 36$

34. $y^2 - 144$

35. $y^2 - 10y + 25$

36. $9x^2 - 64$

37. $64x^2 + 40x + 6$

38. $14x^2 - 56$

Write the value missing from each perfect square trinomial.

39. $x^2 +$ _____ $x + 64$

40. _____ $y^2 + 16y + 16$

41. $25x^2 - 60x +$ _____

42. $36y^2 -$ _____ $y + 100$

Identify the factor common to the first two terms and the factor common to the last two terms of the polynomial.

43. $9x^5 + 6x^4 - 12x + 8$

44. $20x^4 + 16x^3 - 5x - 4$

Factor completely.

45. $15y^3 + 12y^2 + 5y + 4$

46. $6x^2 - 2x - 20$

47. $x^4 - 6x^3 + 6x - 36$

48. $12x^3 - 18x^2 - 8x + 12$

49. $24y^3 + 56y^2 - 6y - 14$

50. $-4y^3 + 3y^2 + 8y - 6$

51. Open-Ended Writing $(x + y)^2$ as $x^2 + y^2$ illustrates a common error. Explain.