READY TO GO ON?

Quiz for Lessons 7-5 Through 7-8

7-5 Polynomials

Write each polynomial in standard form and give the leading coefficient.

1. $4r^2 + 2r^6 - 3r$

2. $y^2 + 7 - 8y^3 + 2y$

3. $-12t^3 - 4t + t^4$

4. $n + 3 + 3n^2$

5. $2 + 3x^3$

6. $-3a^2 + 16 + a^7 + a$

Classify each polynomial according to its degree and number of terms.

7. $2x^3 + 5x - 4$

8. $5b^2$

9. $6p^2 + 3p - p^4 + 2p^3$

10. $x^2 + 12 - x$

11. $-2x^3 - 5 + x - 2x^7$

12. $5 - 6b^2 + b - 4b^4$

13. **Business** The function $C(x) = x^3 - 15x + 14$ gives the cost to manufacture x units of a product. What is the cost to manufacture 900 units?

7-6 Adding and Subtracting Polynomials

Add or subtract.

14. $(10m^3 + 4m^2) + (7m^2 + 3m)$
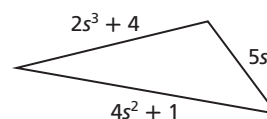
15. $(3t^2 - 2t) + (9t^2 + 4t - 6)$

16. $(12d^6 - 3d^2) + (2d^4 + 1)$

17. $(6y^3 + 4y^2) - (2y^2 + 3y)$

18. $(7n^2 - 3n) - (5n^2 + 5n)$

19. $(b^2 - 10) - (-5b^3 + 4b)$

20. **Geometry** The measures of the sides of a triangle are shown as polynomials. Write a simplified polynomial to represent the perimeter of the triangle.

$2s^3 + 4$ $5s$ $4s^2 + 1$

7-7 Multiplying Polynomials

Multiply.

21. $2h^3 \cdot 5h^5$

22. $(s^8 t^4)(-6st^3)$

23. $2ab(5a^3 + 3a^2 b)$

24. $(3k + 5)^2$

25. $(2x^3 + 3y)(4x^2 + y)$

26. $(p^2 + 3p)(9p^2 - 6p - 5)$

27. **Geometry** Write a simplified polynomial expression for the area of a parallelogram whose base is $(x + 7)$ units and whose height is $(x - 3)$ units.

7-8 Special Products of Binomials

Multiply.

28. $(d + 9)^2$

29. $(3 + 2t)^2$

30. $(2x + 5y)^2$

31. $(m - 4)^2$

32. $(a - b)^2$

33. $(3w - 1)^2$

34. $(c + 2)(c - 2)$

35. $(5r + 6)(5r - 6)$

36. **Sports** A child's basketball has a radius of $(x - 5)$ inches. Write a polynomial that represents the surface area of the basketball. (The formula for the surface area of a sphere is $S = 4\pi r^2$, where r represents the radius of the sphere.) Leave the symbol π in your answer.