NAME _____ DATE _____

Practice 54

FOR USE WITH SECTION 9.1

Tell whether each expression is a polynomial. If so, write the polynomial in standard form and state its degree. If not, state why not.

1. $3y^2 + 2y\sqrt{5} - \frac{y^3}{4}$

2. $\frac{1}{x^4 + 7x}$

3. $5t + 4\sqrt{t^3} - t^5$

4. $4r - 8 + \pi r^3 - \frac{\sqrt{3}}{2}r^2$

Use synthetic substitution to evaluate each polynomial for the given value of the variable.

5. $2x^3 - 3x^2 + 4x - 7;\ x = 3$

6. $n^3 + 2n^2 - 5n + 10;\ n = -4$

7. $-3u^4 - 2u^3 - u + 6;\ u = -2$

8. $t^4 - 3t^2 + 11t - 9;\ t = -3$

9. $r^3 - 2r^2 + 4r - 7;\ r = 2$

10. $a^5 + 1;\ a = -1$

Add.

11. $(7v^3 - 4v^2 - v + 8) + (2v^3 - 9v^2 + v - 11)$

12. $(-w^3 - 3w^2 + 9w - 13) + (6w^3 + w^2 - 5)$

13. $(5x^4 - 10x^2 + 16x - 1) + (2x^4 + 8x^3 - 6x - 13)$

14. $(3y^5 - 7y^3 - 5y + 3) + (12y^4 - 9y^3 + 12y^2 + y - 4)$

15. $(2.4t^4 + 0.2t^3 - 1.6t^2 + 0.8t - 2.3) + (-t^4 - 0.7t^3 + 0.4t^2 - t + 3)$

16. $\left(\frac{1}{4}k^3 - \frac{2}{3}k^4 + \frac{3}{5} - \frac{1}{2}k^2 + k\right) + \left(\frac{3}{10} - \frac{3}{4}k^2 - \frac{1}{4}k^3 + \frac{1}{3}k^4 - \frac{1}{6}k\right)$

Subtract.

17. $(x^3 + 5x^2 - 8x - 12) - (4x^3 - 7x^2 + 3x + 2)$

18. $(2n^3 - n^2 + 5n + 6) - (15n^3 + n^2 - 8n - 9)$

19. $(-7p^4 + 11p^2 - p - 8) - (10p^4 + 5p^3 - 6p + 14)$

20. $(5\sqrt{2}a^2 - 3\sqrt{5}a + 4\sqrt{7} - \sqrt{3}a^3) - (\sqrt{5}a - 8\sqrt{3}a^3 + \sqrt{2}a^2 - \sqrt{7})$

21. $(0.8r^4 + 1.6r^3 - 0.3r - 2.6) - (3.2r^3 - 1.5r^2 - 0.4r - 0.5)$

22. $\left(\frac{5}{3}x - \frac{5}{6}x^3 + \frac{1}{4}x^2 - x^4 - \frac{3}{5}\right) - \left(\frac{4}{5}x^4 - \frac{3}{2}x^2 - x^3 + \frac{2}{3}x + 2\right)$

23. Open-ended Problem Describe how the processes of adding polynomials and adding whole numbers (expressed in the usual decimal form with each digit representing a place value) are alike. Describe how these two processes differ.

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