Name _____ Class _____ Date _____

Practice 6-1

Polynomial Functions

Find a cubic model for each function. Then use your model to estimate the value of y when $x = 7$.

1.

x	0	2	4	6	8	10
y	25	21	20	23	19	17

2.

x	0	2	4	6	8	10
y	3.1	4.2	4.3	4.4	5.1	6.7

Write each polynomial in standard form. Then classify it by degree and by number of terms.

3. $4x + x + 2$

4. $-3 + 3x - 3x$

5. $6x^4 - 1$

6. $1 - 2s + 5s^4$

7. $5m^2 - 3m^2$

8. $x^2 + 3x - 4x^3$

9. $-1 + 2x^2$

10. $5m^2 - 3m^3$

11. $5x - 7x^2$

12. $2 + 3x^3 - 2$

13. $6 - 2x^3 - 4 + x^3$

14. $6x - 7x$

15. $a^3(a^2 + a + 1)$

16. $x(x + 5) - 5(x + 5)$

17. $p(p - 5) + 6$

18. $(3c^2)^2$

19. $-(3 - b)$

20. $6(2x - 1)$

21. $\frac{2}{3} + s^2$

22. $\frac{2x^4 + 4x - 5}{4}$

23. $\frac{3 - z^5}{3}$

24. The lengths of the sides of a triangle are $x + 4$ units, x units, and $x + 1$ units. Express the perimeter of the triangle as a polynomial in standard form.

25. Find a cubic function to model the data below. (Hint: Use the number of years past 1940 for x.) Then use the function to estimate the average monthly Social Security Benefit for a retired worker in 2005.

Average Monthly Social Security Benefits, 1940–1999

Year	1940	1950	1960	1970	1980	1990	1999
Amount (in dollars)	22.71	29.03	81.73	123.82	321.10	550.50	757.71

Source: *www.infoplease.com*

26. Find a cubic function to model the data below. (Hint: Use x to represent the gestation period.) Then use the function to estimate the longevity of an animal with a gestation period of 151 days.

Gestation and Longevity of Certain Animals

Animal	Rat	Squirrel	Pig	Cow	Elephant
Gestation (in days)	21	44	115	280	624
Longevity (in years)	3	9	10	12	40

Source: *www.infoplease.com*