Name _____ Date _____

4.1 Practice A

In Exercises 1–4, decide whether the function is a polynomial function. If so, write it in standard form and state its degree, type, and leading coefficient.

1. $f(x) = 4x^2 - 3x + 5x^3 - 7$

2. $h(x) = 5x^3 - 7x^{-2} + x - 1$

3. $g(x) = x^4 - \frac{1}{3}x^2 + 10 - 4x^3 + 2x$

4. $f(x) = 8x^2 - \sqrt{3}x + 2$

In Exercises 5–7, evaluate the function for the given value of *x*.

5. $f(x) = -2x^4 + x^3 + 5x^2 - 3x - 7;\ x = -1$

6. $g(x) = 5x^4 - 2x^3 + 9x - 10;\ x = -6$

7. $h(x) = x^5 - 4x^3 + 3x^2 + 11x - 8;\ x = 7$

In Exercises 8 and 9, describe the end behavior of the graph of the function.

8. $g(x) = 6x^4 - 3x^3 + 12x^2 + 8x + 2$

9. $h(x) = -5x^9 + 6x^7 - 5x^4 + x^2 - 1$

In Exercises 10–13, graph the polynomial function.

10. $q(x) = x^4 - 2$

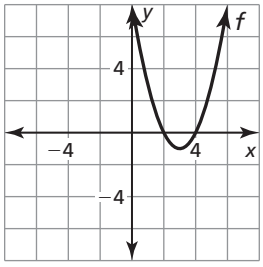
11. $h(x) = x^3 - 2x + 3$

12. $k(x) = 2x^2 + 3 - x^3$

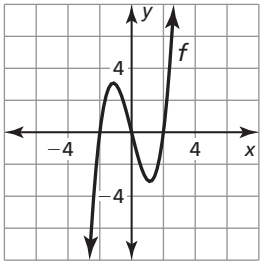
13. $f(x) = x^5 - 2x^3 + 1$

In Exercises 14 and 15, describe the *x*-values for which *f* is increasing, decreasing, positive, and negative.

14.



15.



16. Suppose $f(x) \to -\infty$ as $x \to -\infty$ and $f(x) \to -\infty$ as $x \to +\infty$. Describe the degree and leading coefficient of the function.

Name_____ Date _____

4.1 Puzzle Time

What Do You Get When You Cross An Ear Of Corn With A Spider?

Write the letter of each answer in the box containing the exercise number.

Write the polynomial function in standard form and state its degree, type, and leading coefficient.

1. $f(x) = \frac{3}{4}x^3 - 2x + x^4$

2. $f(x) = 12 - x + 2x^2 - 4x$

3. $f(x) = 3x^2 - x^3 + 7x - 3$

4. $f(x) = \sqrt{4}x^2 - 8$

5. $f(x) = 5 - \frac{2}{5}x^3 + 6x - x^2$

6. $f(x) = \sqrt{\frac{1}{4}}x + 10$

7. $f(x) = -3x^2 + x - x^2 - 6$

1	2	3	4	5	6	7

Answers

B. $f(x) = -x^3 + 3x^2 + 7x - 3$
degree 3 (cubic)
leading coefficient of -1

W. $f(x) = 2x^2 - 8$
degree 2 (quadratic)
leading coefficient of 2

O. $f(x) = 2x^2 - 5x + 12$
degree 2 (quadratic)
leading coefficient of 2

B. $f(x) = \frac{1}{2}x + 10$
degree 1 (linear)
leading coefficient of $\frac{1}{2}$

E. $f(x) = -\frac{2}{5}x^3 - x^2 + 6x + 5$
degree 3 (cubic)
leading coefficient of $-\frac{2}{5}$

C. $f(x) = x^4 + \frac{3}{4}x^3 - 2x$
degree 4 (quartic)
leading coefficient of 1

S. $f(x) = -4x^2 + x - 6$
degree 2 (quadratic)
leading coefficient of -4