

**Algebra 2**  
**Worksheet 4.1B**

NAME \_\_\_\_\_

**Determine whether the function is a polynomial function. If so, write it in standard form and state its degree, type, and leading coefficient.**

1.  $f(x) = x^2 + 3x^4 - x - 9$

2.  $y = \frac{1}{4}x^3 - 2x + 5x^6 - 17$

3.  $f(x) = 3x^2 + \frac{3}{4}x^4 - \frac{3}{x} - 5$

4.  $y = 6x^4 - \sqrt{2}x + 4x^5 + 8$

**Evaluate the function for the given value of  $x$ .**

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

6.  $f(x) = x^4 + 2x^3 - x - 1; x = 2$

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

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

**Describe the end behavior of the function.**

9.  $f(x) = 3x^3 - x^2 + 4x - 6$

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

11.  $f(x) = -5x^3 - 4x^2 + 2x - 11$

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

**Graph the polynomial function.**

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

14.  $f(x) = -2x^4 + 3x^3 - 4x - 2$