WORKSHEET 2.2 – Evaluating Polynomial Functions

Name: _____ Date: _____ Hour: _____

SECTION 1: Decide whether the function is a polynomial function. If it is, write the function in standard form and state the degree, type, and leading coefficient. If it is not a polynomial function, explain (or circle) why. (2.2.A)

1) $f(x) = 5 - 3x$

2) $f(x) = 2x + \frac{1}{5}x^4 + 8$

3) $f(x) = 3x^{-2} + 5x - 7$

4) $f(x) = 6x^3 + 5x^2 + 4x - 3^x$

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

SECTION 2: Use Direct Substitution to evaluate the polynomial function for the given value of x. (2.2.B)

6) $f(x) = x^4 - 3x^2 + 2x + 7$, for $x = 2$

7) $f(x) = 2x^3 - x^2 + 6x - 5$, for $x = 5$

8) $f(x) = -x^4 + 8x^3 + 13x - 4$, for $x = -2$

9) $f(x) = 7x^3 + 9x^2 + 3x + 1$, for $x = 3$

SECTION 3: Use Synthetic Substitution to evaluate the polynomial function for the given value of x. (2.2.C)

10) $f(x) = 2x^3 - 3x^2 - 14x + 2$, for $x = 4$

11) $f(x) = 8x^4 - 2x^3 + x^2 - 7x + 9$, for when $x = 3$

12) $f(x) = 5x^2 - 2x^4 + 9x - 6$, for $x = -2$

13) $f(x) = x^6 + 3x + 4$, for $x = 2$

14) $f(x) = 3x^5 + 8x^4 + x^3 + 6x - 8$, for $x = 4$

15) $f(x) = -4x + 7 + 2x^3$, for $x = -3$

SECTION 4: Make a table of values for each function using either Direct Substitution or Synthetic Substitution. (2.2.B, 2.2.C)

16) $f(x) = 2x^3 + 4x^2 - 7x + 9$

x	-2	-1	0	1	2
y					

17) $f(x) = x^4 - 5x^3 - 9x^2 + 10$

x	-2	-1	0	1	2
y					