Patterns, Zeros, and Turns Name: _____

Directions: Answer each question completely. **You are not allowed to use a calculator.** Show ALL of your work for credit. Good luck!!! ☺

1) **Determine the following: a) the leading coefficient, b) the degree of the polynomial, and c) the end behavior of the graph (you can use arrows to show the end behavior of each).**

a. $y = -2x^2 + 4x$

a. _____

b. _____

c. _____, _____

b. $y = 7x^5 + 3x^4 - 4x$

a. _____

b. _____

c. _____, _____

c. $y = -9x^8 - 2x^6 - 3x^5$

a. _____

b. _____

c. _____, _____

d. $h(x) = 3 - x^5 - 3x^4$

a. _____

b. _____

c. _____, _____

e. $y = -2x^3 + 7x^2 + 5x^4$

a. _____

b. _____

c. _____, _____

f. $j(x) = 6 + 11x^3$

a. _____

b. _____

c. _____, _____

2) **Fill out the table completely.**

Function	$f(x) = -2(x-2)^2(x+4)^2$	$f(x) = -\frac{3}{4}(x-7)(x+8)(x+3)$	$f(x) = 3(x+2)(x-4)(x-6)$	$f(x) = 4(x-4)^2(x+2)(x-3)(x+1)$
Leading Coefficient				
Degree				
Number of Linear Factors				
End Behavior	(___ , ___)	(___ , ___)	(___ , ___)	(___ , ___)
Number of Turning Points				
y-intercept				
State the Number of Real Zeroes at Their Location	**Crossing:** **Touching:** **Total:**	**Crossing:** **Touching:** **Total:**	**Crossing:** **Touching:** **Total:**	**Crossing:** **Touching:** **Total:**