Honors Algebra II
Unit 4 Polynomials
Analyzing Graphs Practice

Name: AK
Date: _____

State the possible number of turns in the graph of the polynomial function.
State the degree and if it is odd or even.
Determine the leading coefficient and y-intercept.
Finally state the end behaviors of the functions.

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

# of turns: 3
degree: 4, even
L.C. 1 y-int: (0,5)
As $x \to -\infty$, $f(x) \to \infty$
As $x \to \infty$, $f(x) \to \infty$

$-5x^6 + 2x^2 + 4$

2. $g(x) = 4 + 2x^2 - 5x^6$

# of turns: 5
degree: 6, even
L.C. -5 y-int: (0,4)
As $x \to -\infty$, $g(x) \to -\infty$
As $x \to \infty$, $g(x) \to -\infty$

3. $h(x) = 2x + 3x^9 + 2x^2 - 5$

# of turns: 8
degree: 9, odd
L.C. 3 y-int: (0,-5)
As $x \to -\infty$, $h(x) \to -\infty$
As $x \to \infty$, $h(x) \to \infty$

4. $f(x) = -6x^5 + 3x - x^7$

# of turns: 6
degree: 7, odd
L.C. -1 y-int: (0,0)
As $x \to -\infty$, $f(x) \to \infty$
As $x \to \infty$, $f(x) \to -\infty$

5. $g(x) = 3x^3(x+2)^2(x-3)(x+5)^3$

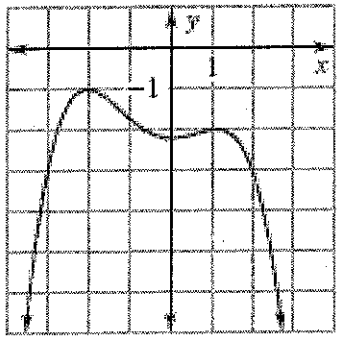
# of turns: 8
degree: 9, odd
L.C. 3 y-int: (0,0)
As $x \to -\infty$, $g(x) \to -\infty$
As $x \to \infty$, $g(x) \to \infty$

6. $h(x) = -2x(x+1)(x-6)(x-2)^3$

# of turns: 5
degree: 6, even
L.C. -2 y-int: (0,0)
As $x \to -\infty$, $h(x) \to -\infty$
As $x \to \infty$, $h(x) \to -\infty$

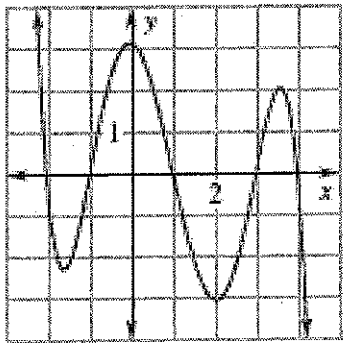
Is the function even or odd?
What is the minimum degree of each of the polynomials based on vertices?
Determine if the leading coefficient is positive or negative for the function.
Finally, state the end behaviors.

7.



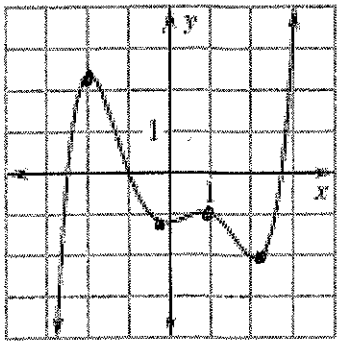
Even
3 vertices
Degree of 4
L.C. Negative
As $x \to -\infty$, $y \to -\infty$
As $x \to \infty$, $y \to -\infty$

8.



Odd
4 vertices
Degree of 5
L.C. Negative
As $x \to -\infty$, $y \to \infty$
As $x \to \infty$, $y \to -\infty$

9.



Odd
4 vertices
Degree of 5
L.C. Positive
As $x \to -\infty$, $y \to -\infty$
As $x \to \infty$, $y \to \infty$