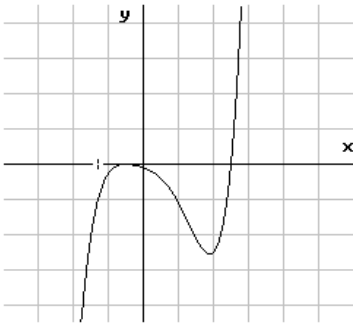
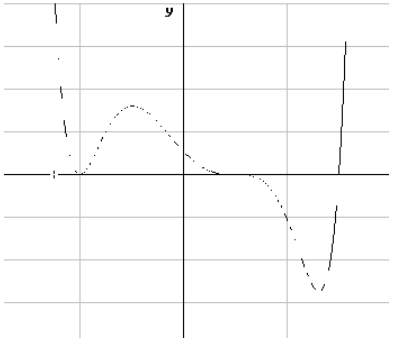
Characteristics From a Graph

Characteristics	a $y=(x-5)(x+2i)(x-2i)(x+1)^2$	b $y=(x-3)(x-1)^3(x-3i)(x+3i)(x+2)^2$	c $y=(2x-3)^2(4x-1)(x+3)$
1.Possible degree of the function	5	8	4
2.Value leading coefficient	1	1	16
3.Sign of the leading coefficient	+	+	+
4.Where does the graph start	3rd	2nd	2nd
5.Where does the graph finish	1st	1st	1st
6.Value of the y-intercept	-20	108	-27
7.The value of the constant	-20	108	-27
8.What is (are) the x-intercepts (critical zeros)	x = -1, 5	x = -2, 1, 3	X = -3, 1/4, 3/2
9.Multiplicity and value of positive real roots	x = 5, m = 1	x = 1, m = 3; x = 3, m = 1	X = 1/4, m = 1; x = 3/2, m = 2
10. Multiplicity and value of negative real roots	x = -1, m = 2	x = -2, m = 2	X = -3, m = 1
11.Multiplicity and value of imaginary roots	x = 2i, m = 1; x = -2i, m = 1	x = 3i, m = 1; x = -3i, m = 1	none
12.Number of times the graph changes direction	2	3	3
13.Number of peaks	1	1	1
14.Number of valleys	1	2	2

a)



b)



c)