AA6-1 Name _____

Quadratic and cubic polynomials

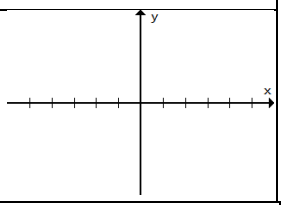
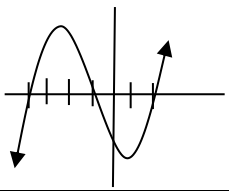
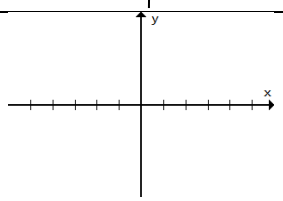
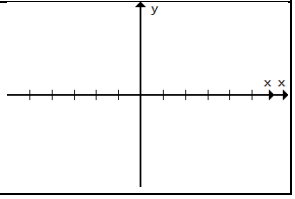
Check for understanding: Match:

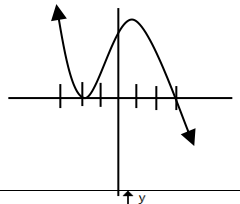
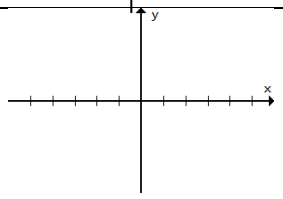
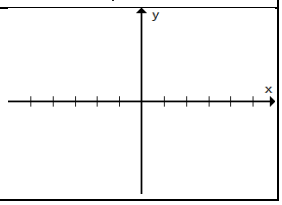
x-intercept and type	factor
_____ (9,0) simple	A. x^2
	B. $(x-9)^3$
_____ (-9,0) bouncing	C. $(x-9)^2$
	D. (x^3)
_____ (9,0) flat	E. $(x-3)$
	F. $(x+9)^2$
_____ (0,0) simple	G. x
	H. $(x-9)$
_____ (0,0) bouncing	I. $(x+9)$
	J. $(x+9)^3$
_____ (0,0) flat	

Polynomial	start / end
_____ $y = -x^2$	A. up / up
_____ $y = 3x^2 - 7$	B. down / down
_____ $y = 2x^3$	C. down / up
_____ $y = -4x^3 + 2x^2$	D. up / down
_____ $y = (x+3)(x-7)$	
_____ $y = -3(x-7)^2(x+1)$	

Practice: C-Level

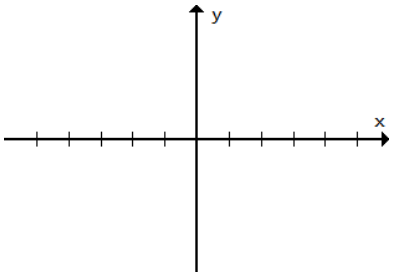
Complete the chart without a calculator. Use a calculator or Desmos only to check your work.

An equation (Factored Form)	**Leading term**		**x-intercepts**		**End behavior**		**Sketch a graph**
	Is "a" positive or negative	degree	point	type	start	final	
$y = (x-4)(x+5)$							
							
			(-3,0)	simple	up	down	
			(1,0)	simple			
			(5,0)	simple			
	positive	3	(-2,0)				

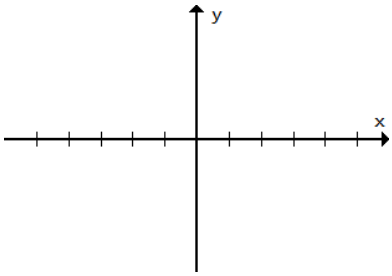
An equation (Factored Form)	Leading term		x-intercepts		End behavior		Sketch a graph
							
$y = (x+1)^2(x-4)$							
$y = -(x-1)(x-2)(x-3)$							

2. Sketch the graph of each of the following polynomials without a calculator.

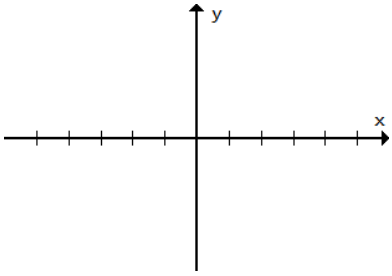
a. $f(x) = -3(x-4)^2$



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

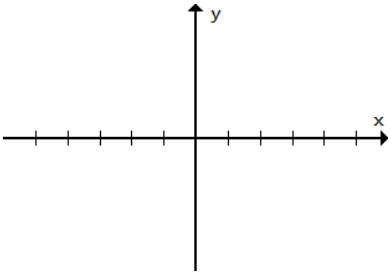


c. $f(x) = -5(x+5)(x-1)(x-2)$

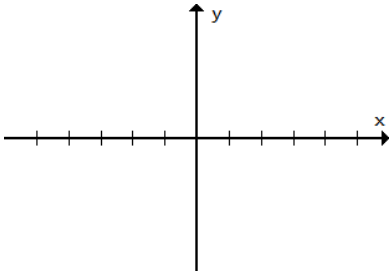


Looking ahead (to get a stamp you must attempt one of each type below):

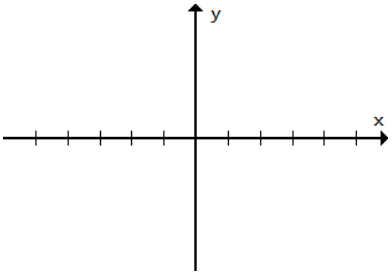
d. $f(x) = 2(x+4)^5$



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

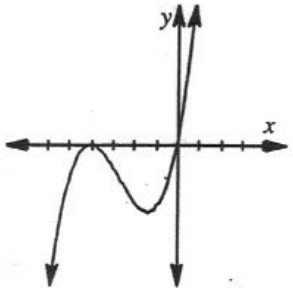


f. $f(x) = (x-4)^3(x+3)(x+5)$

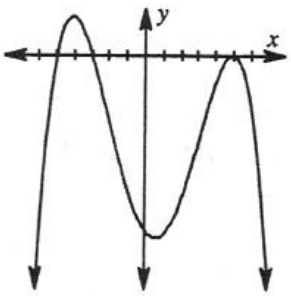


Write a possible equation for the polynomials graphed below.

8.



9.



10.