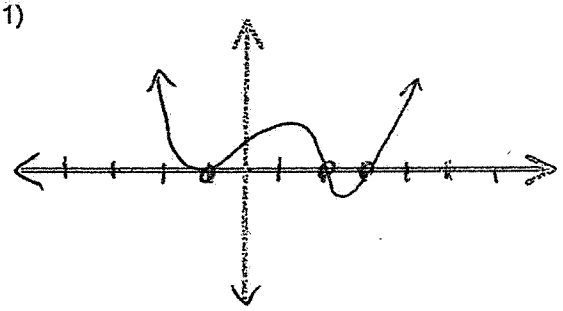
Name Key

Graphing Polynomial Functions from Factored Form

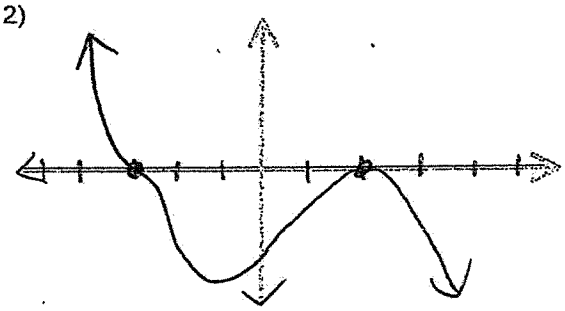
Sketch the graph of each polynomial function.

	Function	a: Positive or Negative	n: Even or Odd	Zeros	Multiplicity?
1	$f(x)=(x+1)^2(x-2)(x-3)$	+	even (4)	$x=-1,\ x=2,\ x=3$	-1, multiplicity 2
2	$f(x)=-2(x+3)^3(x-2)^2$	−	odd (5)	$x=-3,\ x=2$	-3, multiplicity 3 2, multiplicity 2

1)

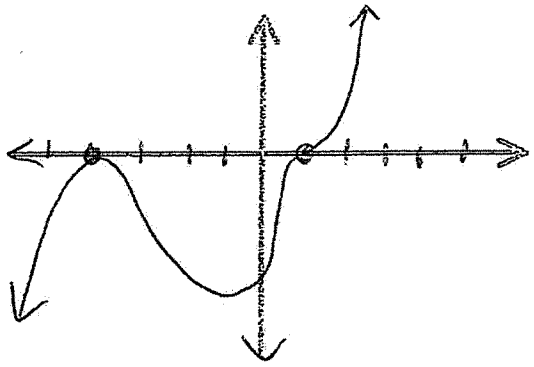


2)

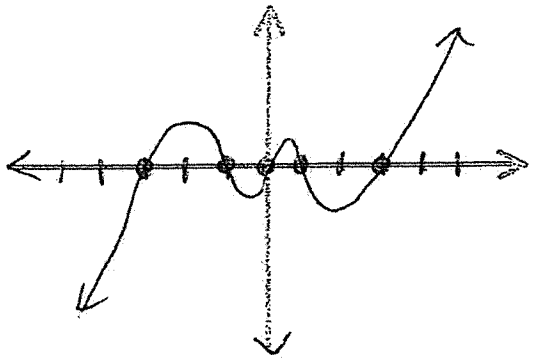


	Function	a: Positive or Negative	n: Even or Odd	Zeros	Multiplicity?
3.	$f(x)=(x-1)^3(x+4)^2$	+	odd (5)	$x=1,\ x=-4$	1, with multiplicity 3 -4, with multiplicity 2
4.	$f(x)=x(x+3)(x+1)(x-1)(x-3)$	+	odd (5)	$x=0,\ x=-3,\ x=\pm1,\ x=3$	None

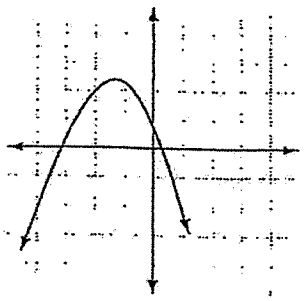
3)

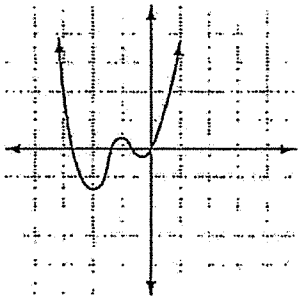


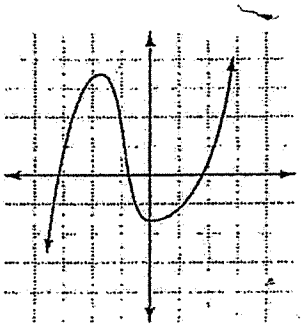
4)



Use the graphs to fill in the table

1. 

2. 

3. 

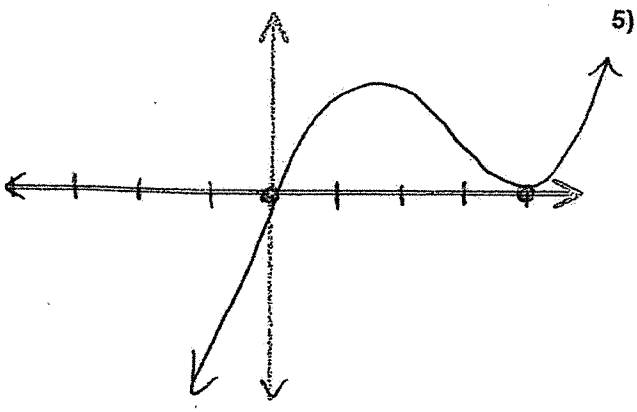
Function	n degree (circle one)	Lead coef. a (circle one)	End Behavior (Left and Right)	How many x-intercepts?
1.	Odd Even	Positive negative	L: As $x \to -\infty$, $y \to -\infty$ R: As $x \to +\infty$, $y \to -\infty$	2
2.	Odd Even	Positive negative	L: As $x \to -\infty$, $y \to \infty$ R: As $x \to \infty$, $y \to \infty$	4
3.	Odd Even	Positive negative	L: As $x \to -\infty$, $y \to -\infty$ R: As $x \to \infty$, $y \to \infty$	3

a n

Fill in the table for each of the following functions, then sketch the graphs.

Function	Positive or Negative	Even or Odd	Zeros	Multiples?
4. $f(x)=x(x-4)^2$	+	odd (3)	$x=0$, $x=4$	4, multiplicity 2
5. $f(x)=-x^2(x-2)(x+1)$	−	(4) even	$x=0$, $x=2$, $x=-1$	0, multiplicity 2

4)



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