

# Polynomials Review 1: Vocab and Sketching

## Vocabulary

Fill in the tables describing these polynomials. You should be able to fill in all of these answers without making any graphs!

Polynomial (Standard Form)	Degree	Leading Coeff.	Constant Term	Max # of Turns	End Behavior	Classification
1) $6x^3 - 13x^2 + 4$	3	6	4	2	down, up	cubic trinomial
2) $-8x^3$						
3) $-3x^2 + 8$						
4) $10x + 5$						
5) $30x^4 - x^2 + 7$						
6) 12						
7) $-50x + \frac{2}{3}$						

Polynomial (Factored Form)	Degree	Leading Coeff.	Zeros	End Behavior
8) $6x(2x-1)(x+5)$	3	12	0, 1/2, -5	down, up
9) $(3x-4)(x-8)$				
10) $x-10$				
11) $-9x^2(x-2)(x+6)$				
12) $-5(x-1)$				

## Sketching Graphs

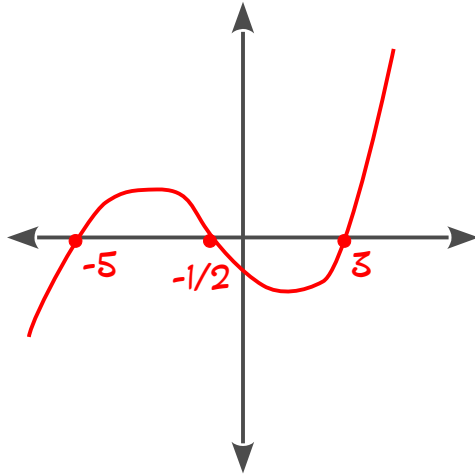
13)  $y=5(x-3)(x+5)(2x+1)$  **EXAMPLE!!**

Zeros: **3, -5, -1/2**

Leading term:  **$5 \cdot x \cdot x \cdot 2x = 10x^3$**

End behavior: **down, up**

Sketch:



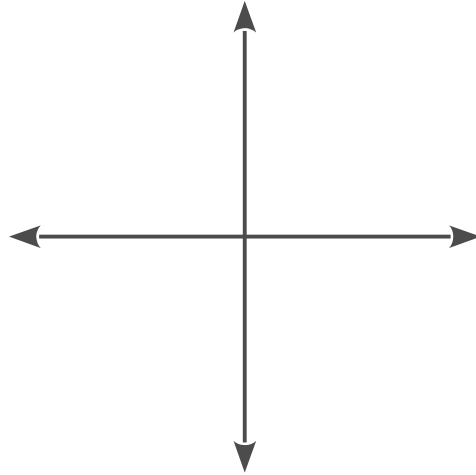
14)  $y=2x(x-4)$

Zeros:

Leading term:

End behavior:

Sketch:



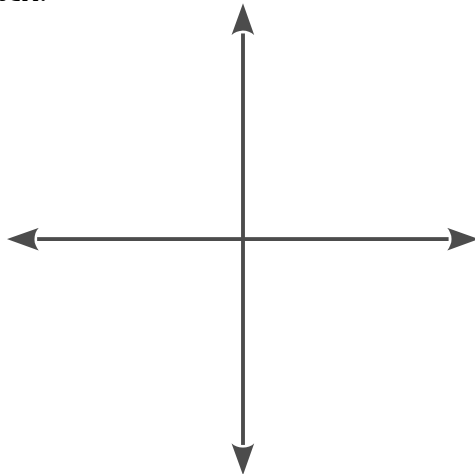
15)  $y=-5x(x+6)(x-1)$

Zeros:

Leading term:

End behavior:

Sketch:



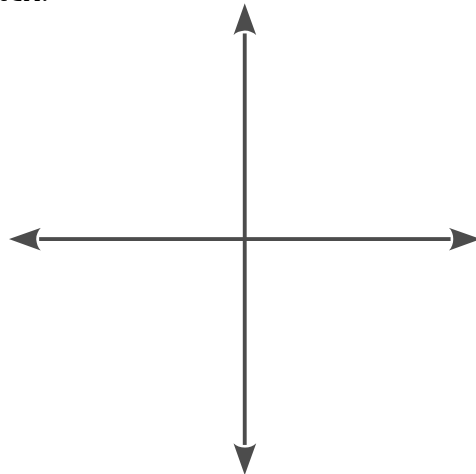
16)  $y=(x+3)(x-1)(x-1)(x-5)$

Zeros:

Leading term:

End behavior:

Sketch:



Note: This function has a repeated zero!! This means the graph will have a turning point there instead of going through to the other side.

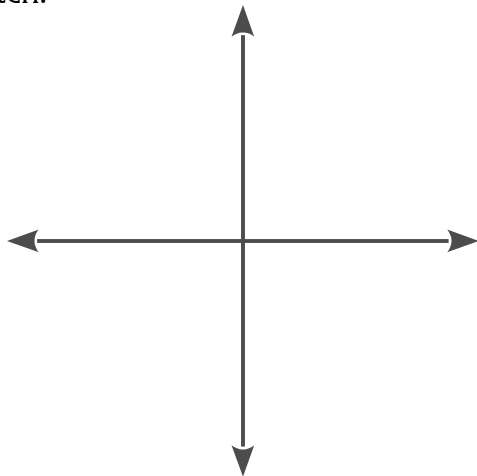
17)  $y = -3(x+3)(x-5)$

Zeros:

Leading term:

End behavior:

Sketch:



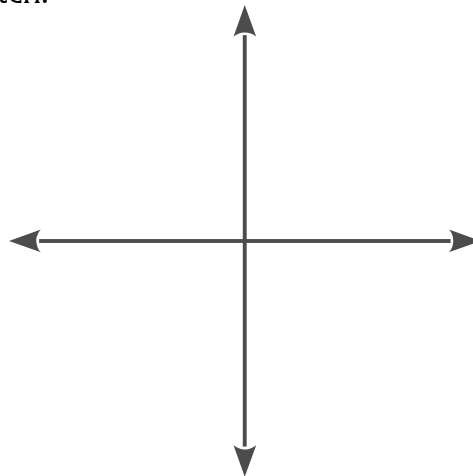
18)  $y = (x-6)(x-1)(x+3)(x+5)x$

Zeros:

Leading term:

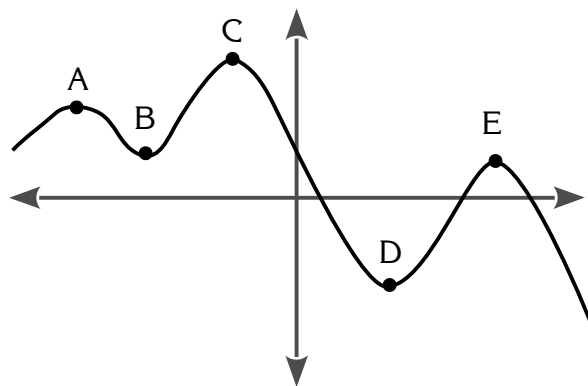
End behavior:

Sketch:



19) Identify the type of extreme for each point:

Type	A	B	C	D	E
Absolute Maximum					
Absolute Minimum					
Relative Maximum					
Relative Minimum					



20) Look at the graph to the right. You can assume it continues forever in the directions shown.

- Is the degree EVEN or ODD?
- Is the leading coefficient POSITIVE or NEGATIVE?
- What is the smallest possible degree for this function?
- How many real zeros does it have?

