

### M3H U2 Day 4 - Polynomial Graphs HW Part 1

SWBAT: Graph polynomials given their degree, end behavior, zeros, multiplicity.

Sketch these polynomial graphs on **graph paper** - check with your calculator. Accuracy is required for placement of the zeros.

Accuracy is not required for local extrema, so just estimate the point where the graph turns. Then fill in the table using the example as a guide for the type of information to include.



Polynomial	Degree	EndBeh - Proper Notation	Zeros, Multiplicity of each one	Graph at each x-int due to multiplicity	Does your sketch resemble the calc?
EX. $f(x) = (x-2)^2(x+4)^3$	5 quintic	$x \rightarrow \infty, y \rightarrow \infty$ $x \rightarrow -\infty, y \rightarrow -\infty$	2 - mult 2 -4 - mult 3	2 - touch and turn -4 - go through with some flattening	Yes - same endbeh, zeros, multiplicity effects
1. $f(x) = -(x-1)^2(x+2)$	3 cubic	$x \rightarrow \infty, y \rightarrow -\infty$ $x \rightarrow -\infty, y \rightarrow \infty$	1 mult 2 -2 mult 1	1 touch & turn -2 straight	
2. $f(x) = (x+3)(x-4)^3$	4 quartic	$x \rightarrow \infty, y \rightarrow \infty$ $x \rightarrow -\infty, y \rightarrow \infty$	-3 mult 1 4 mult 3	-3 straight thru 4 some flattening	
3. $f(x) = x(x-3)^2$	3 cubic	$x \rightarrow \infty, y \rightarrow \infty$ $x \rightarrow -\infty, y \rightarrow -\infty$	0 mult 1 3 mult 3	0 straight 3 touch & turn	
4. $f(x) = -(x+2)(x-1)(x+4)(x-3)$	4 quartic	$x \rightarrow \infty, y \rightarrow -\infty$ $x \rightarrow -\infty, y \rightarrow -\infty$	-2 mult 1 1 mult 1 -4 mult 1 3 mult 1	-2 straight 1 -4 3	