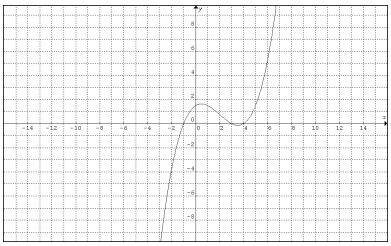
Characteristics of Polynomial Functions

Investigate: Handout. Class will be divided into 4 groups.

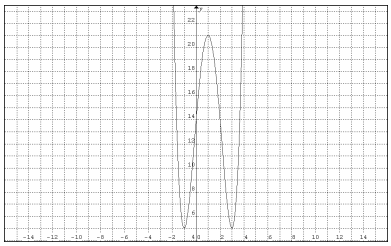
Summary of Investigation

Characteristic	**Odd Polynomial Function**	**Even Polynomial Function**
Number of Zeroes	Between 1 and *n*	Between 0 and *n*
Max / Min	No max / min	One max / min
# of Local Max / Min (Turns)	An even number between 0 and *n*	An odd number between 1 and *n*
End Behaviours	- are opposite - if a_n is positive, then as $x \to +\infty, f(x) \to +\infty$ - if a_n is negative, then as $x \to +\infty, f(x) \to -\infty$.	- are the same - if a_n is positive, then as $x \to +\infty, f(x) \to +\infty$ - if a_n is negative, then as $x \to +\infty, f(x) \to -\infty$
Symmetry	May have point symmetry	May have line symmetry

Example 1: State the minimum possible degree of the following functions:



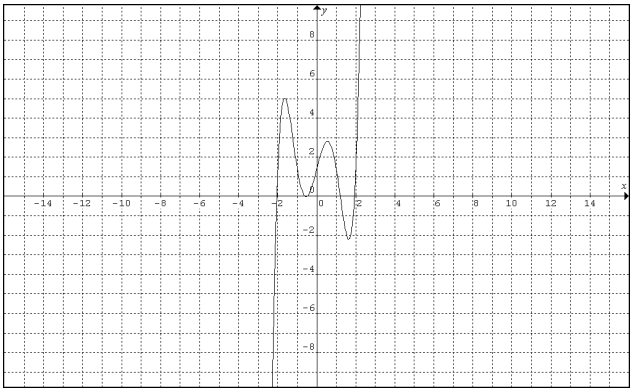
Three zeroes, Two Turns >> **Degree 3**



No Zeroes, but Three Turns >> **Degree 4**

Example 2: Sketch the graph of a 5-th degree function with 4 zeroes and 4 turning points.

Possible Solution:



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