**In order to sketch the graph of a polynomial function, we need \_\_\_\_\_\_\_ characteristics:**

|  |
| --- |
| **Number of Turns** |
| \*How many turns the graph has.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - \_\_\_\_\_\_\_\_\_\_ |
| **End Behavior** |
| \*What f(x) does as we choose larger positive (right side) and larger negative (left side) x-values.

|  |  |  |
| --- | --- | --- |
|  | **Even Degree** | **Odd Degree** |
| **+ LC** |  |  |
| **- LC** |  |  |

 |
| **Finding Zeros** |
| \*The values of x where the graph crosses the x-axis.

|  |  |
| --- | --- |
| **TI 36 Pro**1. Select “Table”
2. Select # 2 - “Edit Function”
3. Enter the polynomial function and press “Enter” 5 times until a table of values appears.
 | **Graphing Calculator**1. Select y =
2. Enter the function
3. Select 2nd and Graph
 |
| Then scroll through the table to determine the values of x when y = 0. |

\*Remember your degree **\_\_\_\_\_\_** = the number of solutions! So if all of the zeros DO NOT appear within the table, use **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** to divide out the zeros you can find and solve by (factoring, quadratic formula, square root method, or inverses) to find the rest.\*If any of your “zeros” have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**\_\_\_\_\_\_\_\_\_\_\_**, the graph will “\_\_\_\_\_\_\_\_\_\_\_\_\_\_,” which creates a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at the \_\_\_\_\_\_\_\_\_\_\_\_\_.\*If any of your “zeros” turn out to be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, then a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ occurs on the graph but **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** cross the x-axis. |
| **Y-Intercept** |
| \*The point where the graph crosses the y-axis. The y-int. is always written as the point (0, y).To calculate the y-intercept, plug in ZERO for x and simplify. **HINT:** This should result in the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** value of the polynomial. |

**Steps to Sketching:**

1.) Identify the \_\_\_\_\_\_ required characteristics.

2.) Plot the \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

3.) \_\_\_\_\_\_\_\_\_ the \_\_\_\_\_\_\_\_\_\_ for the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

4.) Use the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the arrow on the \_\_\_\_\_\_\_\_\_\_\_ to the arrow on the \_\_\_\_\_\_\_\_\_.

**Example: Sketch a graph of the function**



|  |
| --- |
| **Number of Turns:** |
| **Zeros:** |
| **Y-Intercept:** |
| **End Behavior:** |

**Example: Sketch a graph of the function**





**Example: Sketch a graph of the function**



**Example: Sketch a graph of the function**



