• Symmetric with respect to the $x$-axis:
  
  – A graph is said to be symmetric with respect to the $x$-axis if for every point $(x, y)$ on the graph, the point $(x, -y)$ is also on the graph
  
  – To Test: replace $y$ by $-y$ in the equation and simplify. If an equivalent equation results, the equation is symmetric with respect to the $x$-axis.
  
  – Note: this can only happen in graphs that are not functions (i.e. they fail the vertical line test).

• Symmetric with respect to the $y$-axis:

  – A graph is said to be symmetric with respect to the $y$-axis if for every point $(x, y)$ on the graph, the point $(-x, y)$ is also on the graph
  
  – To Test: replace $x$ by $-x$ in the equation and simplify. If an equivalent equation results, the equation is symmetric with respect to the $y$-axis.
  
  – Note: We will call these Even Functions later.

• Symmetric with respect to the origin

  – A graph is said to be symmetric with respect to the origin if for every point $(x, y)$ on the graph, the point $(-x, -y)$ is also on the graph
  
  – To Test: replace $x$ by $-x$ and replace $y$ by $-y$ in the equation and simplify. If an equivalent equation results, the equation is symmetric with respect to the $y$-axis.
  
  – Note: We will call these Odd Functions later.