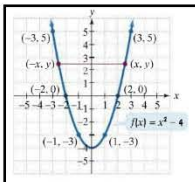


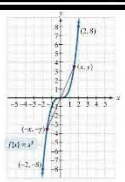
Symmetric with respect to the y-axis

A graph is ***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.

- All even functions have graphs with this kind of symmetry.

Even Functions and y-Axis Symmetry

The graph of an even function in which f(-x) = f(x) is symmetric with respect to the y-axis.



Symmetric with respect to the origin

A graph is ***symmetric with respect to the origin*** if, for every point (x, y) on the graph, the point (-x, -y) is also on the graph.

- All odd functions have graphs with origin symmetry.

Odd Functions and Origin Symmetry

The graph of an odd function in which f(-x) = -f(x) is symmetric with respect to the origin.

Piecewise Function

A function that is defined by two (or more) equations over a specified domain is called a ***piecewise function***.

Step Functions

Some piecewise functions are called ***step functions*** because their graphs form discontinuous steps.

- One such function is called the greatest integer function, symbolized by int(x) or $[\![x]\!]$, where int(x) = the greatest integer that is less than or equal to x.

Example 4: Evaluate the piecewise function at the given values of the independent variable.

$$f(x) = \begin{cases} 4x + 4 & \text{if } x<0 \\ 4x + 7 & \text{if } x \geq 0 \end{cases}$$

a) f(-3) b) f(0) c) f(1)