Transformations of Functions $(Part\,2)$
Symmetry:

$\boldsymbol{y}$-axis Symmetry:

The graph of a function f is **symmetric with respect to the $\boldsymbol{y}$-axis** if $f(-x) = f(x)$ for all x in the domain of f. A function that is symmetric with respect to the y-axis is called an **even** function.

Examples of even functions:

$g : \{(2,3)\,(3,6)\,(-2,3)\,(-3,6)\}$

$f(x) = x^2$

$h(x) = |x|$

Origin Symmetry:

The graph of a function f is **symmetric with respect to the origin** if $f(-x) = -f(x)$ for all x in the domain of f. A function that is symmetric with respect to the origin is called an **odd** function.

Examples of odd functions:

$g : \{(2,3)\,(3,-6)\,(-2,-3)\,(-3,6)\}$

$f(x) = x^3$

$h(x) = \frac{1}{x}$

Monotonicity:

A function f is said to be **increasing** on an interval if for all $x_1 < x_2$ then $f(x_1) < f(x_2)$.

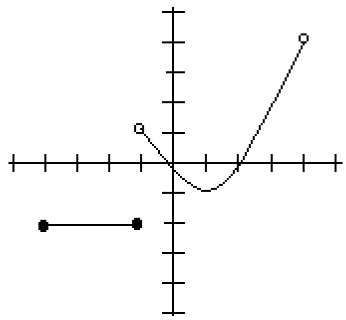
A function f is said to be **decreasing** on an interval if for all $x_1 < x_2$ then $f(x_1) > f(x_2)$.

A function f is said to be **constant** on an interval if for all $x_1 < x_2$ then $f(x_1) = f(x_2)$.

A function f is said to be **monotone** on an interval if f is increasing, decreasing, or constant on the entire interval.

Determine the intervals of monotonicity of the function $f(x) = -(x+3)^2 + 1$

Consider the function g whose graph is shown below:



What is the domain of g

What is the range of g

What is $g(1)$

What is $g(-3)$

What is $g(-2)$

Determine the intervals of monotonicity of g.