Determining Odd and Even Functions Algebraically

Name _____

Date _____ Period _____

Even and Odd Functions

Even and *odd* are terms applied to functions to describe the symmetry that exists of the graph of the function.

Even Functions

Odd Functions

Symmetric with respect to *y*-axis

Symmetric with respect to *origin*

Even Functions

$f(-x) = f(x)$

y-axis

Odd Functions

$f(-x) = -f(x)$

origin

Determine if the following functions are Even, Odd, or Neither

$f(x) = x^2 - 9$

$f(x) = 4x^3 - x$

$f(x) = 2x + 10$

Even Functions	Odd Functions
$f(-x) = f(x)$	$f(-x) = -f(x)$
y-axis	*origin*

Determine if the following functions are Even, Odd, or Neither

$f(x) = |x| + x$ $\quad$ $f(x) = 2x^4 - 4x^2$ $\quad$ $f(x) = x - x^3$

Even and Odd Functions

Even and *odd* are terms applied to functions to describe the symmetry that exists of the graph of the function.

Even Functions

For every point (x,y) on $f(x)$, there is a corresponding point $(-x,y)$

$$f(-x) = f(x)$$

Symmetric with respect to y-axis

Odd Functions

For every point (x,y) on $f(x)$, there is a corresponding point $(-x,-y)$

$$f(-x) = -f(x)$$

Symmetric with respect to *origin*