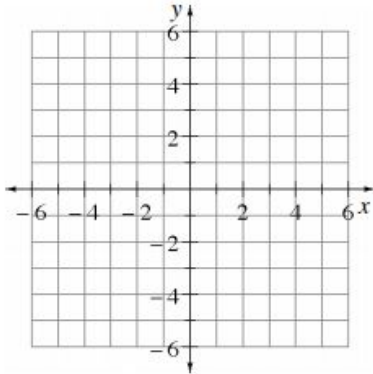# Even and Odd Functions

Create a table and graph for each parent function. Also, for each parent function, simplify the equation f(-x) and -f(x).
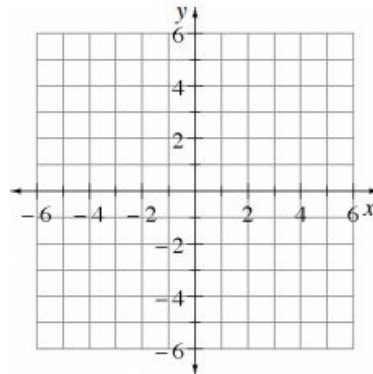
$f(x) = x$

x	−3	−2	−1	0	1	2	3
$f(x)$							

$f(-x) =$ _____

$-f(x) =$ _____

$f(x) = x^2$

x	−3	−2	−1	0	1	2	3
$f(x)$							

$f(-x) =$ _____

$-f(x) =$ _____

$f(x) = x^3$

x	−3	−2	−1	0	1	2	3
$f(x)$							
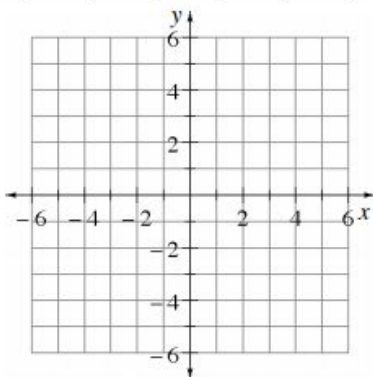
$f(-x) =$ _____

$-f(x) =$ _____

$f(x) = 2^x$

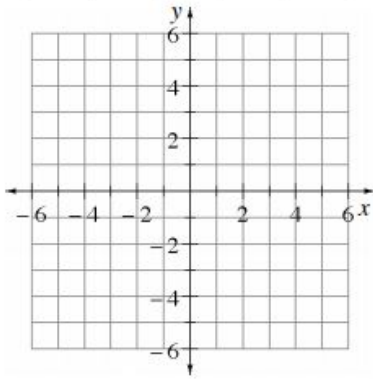| x	−3	−2	−1	0	1	2	3
$f(x)$							
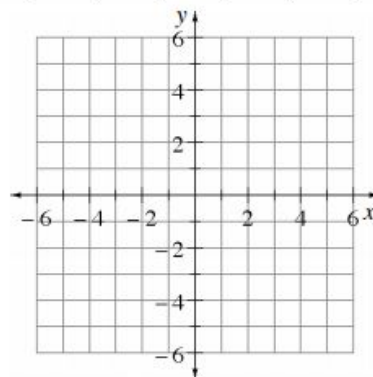
$f(-x) =$ _____

$-f(x) =$ _____

Create a table and graph for each parent function. Also, for each parent function, simplify the equation f(-x) and -f(x).

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

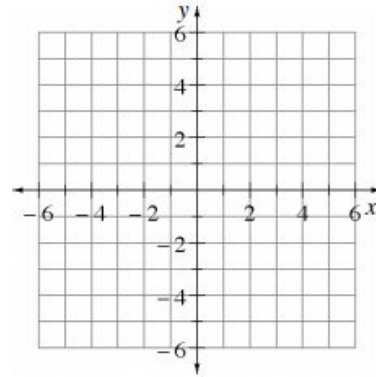| x	-4	-1	$-\frac{1}{4}$	0	$\frac{1}{4}$	1	4
f(x)							

$f(-x) =$ _____

$-f(x) =$ _____

$f(x) = |x|$

x	-3	-2	-1	0	1	2	3
f(x)							

$f(-x) =$ _____

$-f(x) =$ _____

$f(x) = \sqrt{x}$

x						
f(x)						

$f(-x) =$ _____

$-f(x) =$ _____

$f(x) = \sqrt[3]{x}$

x						
f(x)						

$f(-x) =$ _____

$-f(x) =$ _____

Work with your team to sort all of the parent functions into groups and justify your groupings

When sorting the functions you probably noticed that for some of the functions $f(-x) = -f(x)$ and others $f(-x) = f(x)$. A function is an **odd function** if $f(-x) = -f(x)$. A function is an **even function** if $f(-x) = f(x)$. If your functions are not already sorted according to these criteria, re-sort them now and write down the defining characteristics for what makes a function even and what makes a function odd.
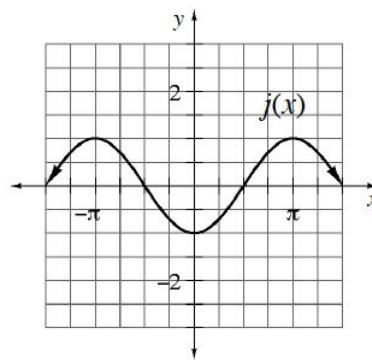
a. Even functions:	b. Odd functions:

#19 Take a look at some different representations of functions.
Are each of the following functions even, odd, or neither? Justify your answers.

a.
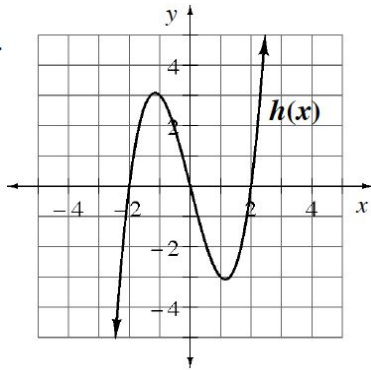
b.

c.

x	−3	−2	−1	0	1	2	3
$f(x)$	16	12	8	4	0	4	8

d. $m(x) = \left| x^3 \right|$

e.

x	−3	−2	−1	0	1	2	3
$g(x)$	−2187	−128	−1	0	1	128	2187