1.7 Even and Odd Functions

Algebra 2

Solutions

1.7 Practice

Prove algebraically if the following functions are even, odd or neither.

1. $h(x) = x^5 + 2x$

$h(-x) = (-x)^5 + 2(-x)$

$= -x^5 - 2x$

$= -(x^5 + 2x)$

$= -h(x)$

odd

2. $g(x) = -3x^4 + x^2$

$g(-x) = -3(-x)^4 + x^2$

$= -3x^4 + x^2$

$= g(x)$

even

3. $f(x) = \frac{x^2+1}{x^3-x}$

$f(-x) = \frac{x^2+1}{-x^3+x}$

$= -\frac{x^2+1}{x^3-x}$

$= -f(x)$

odd

4. $f(x) = \frac{x^4}{x^3-1}$

$f(-x) = \frac{x^4}{-x^3-1}$

$= -\frac{x^4}{x^3+1}$

neither

5. $f(x) = x^3 + x$

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

$= -(x^3 + x)$

$= -f(x)$

odd

6. $g(x) = x^2 + x - 3$

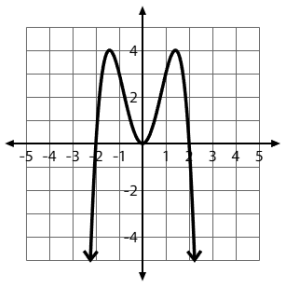
$g(-x) = x^2 - x - 3$

$= -(-x^2 + x - 3)$

neither

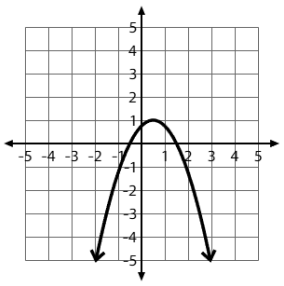
The graphs of functions are shown below. Identify if they are even, odd or neither.

7.



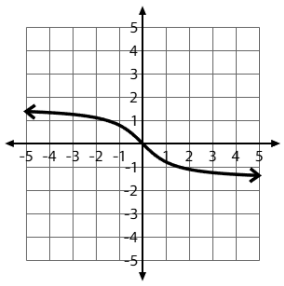
even

8.



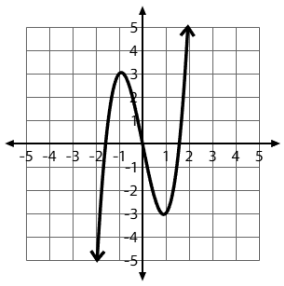
neither

9.



odd

10.



odd

Each table has input and output values listed for a function. Identify if the function could be even, odd, or neither.

11.

x	-4	-2	-1	1	2	4
$f(x)$	-6	-1	5	-5	1	6

odd

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12.

x	$f(x)$
1	1
3	-4
5	2
-1	1
-3	-4
-5	2

even

13.

x	$f(x)$
-3	7
-2	-1
-1	4
1	2
2	-1
3	7

neither

14.

x	$f(x)$
-6	9
-4	3
-2	0
2	0
4	-3
6	-9

odd

1.7 Even and Odd Functions

1.7 Test Prep

15. The function represented in this table is even. Fill in the cells that are blank.

x	-5	7	-9	-7	5	9
$f(x)$	10.5	22.5	38.5	22.5	10.5	38.5

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16. The function f is odd and $f(3) = -8$. What is the value of $f(-3)$?

(A) -8

(B) 0

(C) 8

(D) Impossible to determine

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