

Advanced Math

1-4

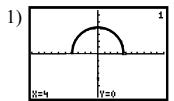
(Day 1)

Analyzing graphs of Functions

Identify the domain and range of each function.

domain: actual- *Set of all possible inputs.*
 graphical- *left and right bounds*

range: actual- *Set of all possible outputs.*
 graphical- *up-down bounds*

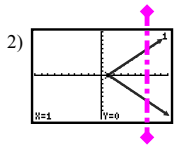


domain: $[0, 4]$

range: $[0, 1]$

function? Yes

Use the vertical line test.



domain: $[1, \infty)$

range: \mathbb{R} or $(-\infty, \infty)$

function? No

Use the vertical line test.

odd function: actual- $f(-x) = -f(x)$
 useful- *origin symmetry*

even function: actual- $f(-x) = f(x)$
 useful- *y-axis symmetry*

Use a graphing utility to graph each function. Then determine the intervals over which the function is increasing, decreasing, or constant. Determine whether the function is odd, even, or neither.

23) $f(x) = 3x^4 - 6x^2$ *x-values*

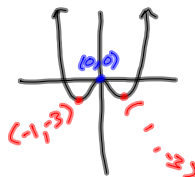
increasing $(-1, 0) \cup (1, \infty)$

decreasing $(-\infty, -1) \cup (0, 1)$

constant None

odd / even / neither

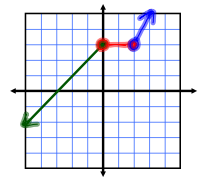
y-axis symmetry



This information is from the calculator.

Sketch the graph of the function and determine whether it is odd, even, or neither.

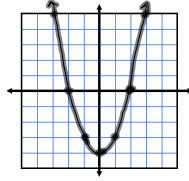
45) $f(x) = \begin{cases} x+3, & x \leq 0 \\ 3, & 0 < x \leq 2 \\ 2x-1, & x > 2 \end{cases}$



Graph the function and determine the intervals for which $f(x) \geq 0$

49*) $f(x) = x^2 - 4$

$x = \text{values}$
 $(-\infty, -2] \cup [2, \infty)$



Assignment:

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1-12 all,

19-22 all,

36-56 even.