

Sec. 1.3 Notes

Even / odd

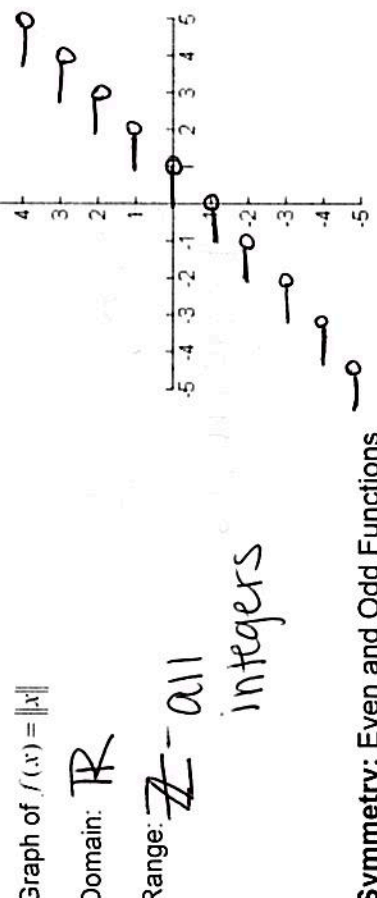
Functions

This should be blank. This gets glued down!



The Greatest Integer Function:

denoted by $\|x\|$, and defined as the greatest integer less than or equal to x , has an infinite number of breaks or steps - one at each integer value in its domain.



Symmetry: Even and Odd Functions

An **even** function is **symmetric to the y-axis**. $f(-x) = f(x)$

An **odd** function is **symmetric to the origin** (you can rotate the graph 180°, and the graph does not change.) $f(-x) = -f(x)$

Use the graph to determine if the given graph is even, odd, or neither.

- EVEN
- ODD
- NEITHER

1. Determine if a function is even or odd from the equation.
1. Substitute negative x in the equation (everywhere you see an x, put -x).
2. Simplify.
3. If the equation simplifies to the original, then you have an **even** function.
4. If the equation simplifies to opposite the original, then you have an **odd** function.

(all signs change)

Example 4

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

$$(-x)^2 + 1 = x^2 + 1$$

EVEN

Example 5

$$f(x) = x^4 - 6x$$

$$(-x)^4 - 6(-x) = x^4 + 6x$$

Neither

Example 6

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

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

ODD

Complete the graph to make it **a) even** and **b) odd**.

