

Chapter 1

Section 7

Step Functions

DEFINITION

- ▶ A function that resembles a set of stairs.
- ▶ The most common is call the Greatest Integer Function.
- ▶ G. I. Function:
 - $f(x) = \lfloor x \rfloor$
 - The greatest integer less than or equal to “x”

Graph of Greatest Integer Function

$$(x) = \lfloor x \rfloor$$

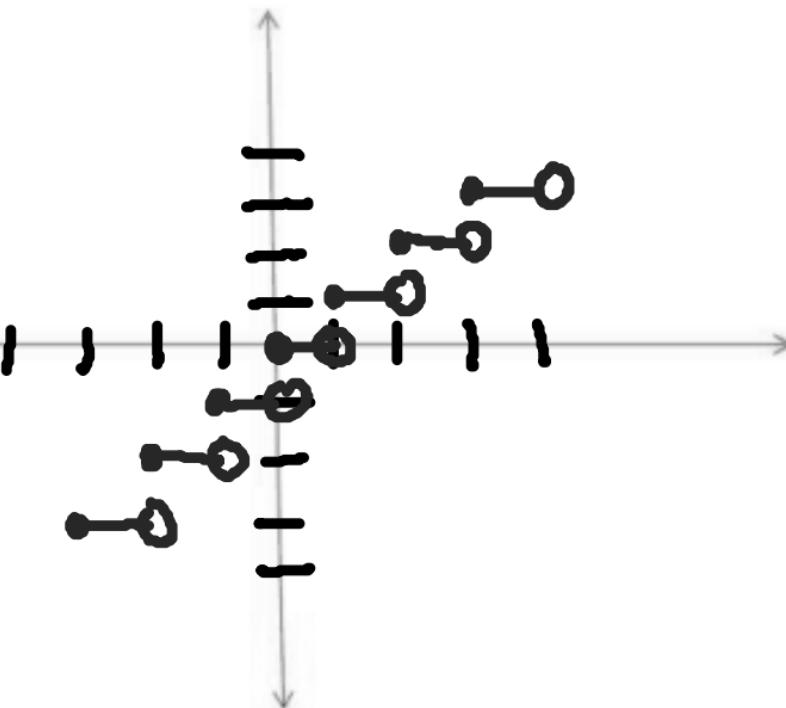
$$\lfloor 2 \rfloor = 2$$

$$\lfloor 2.1 \rfloor = 2$$

$$\lfloor 2.4 \rfloor = 2$$

$$\lfloor -2 \rfloor = -2$$

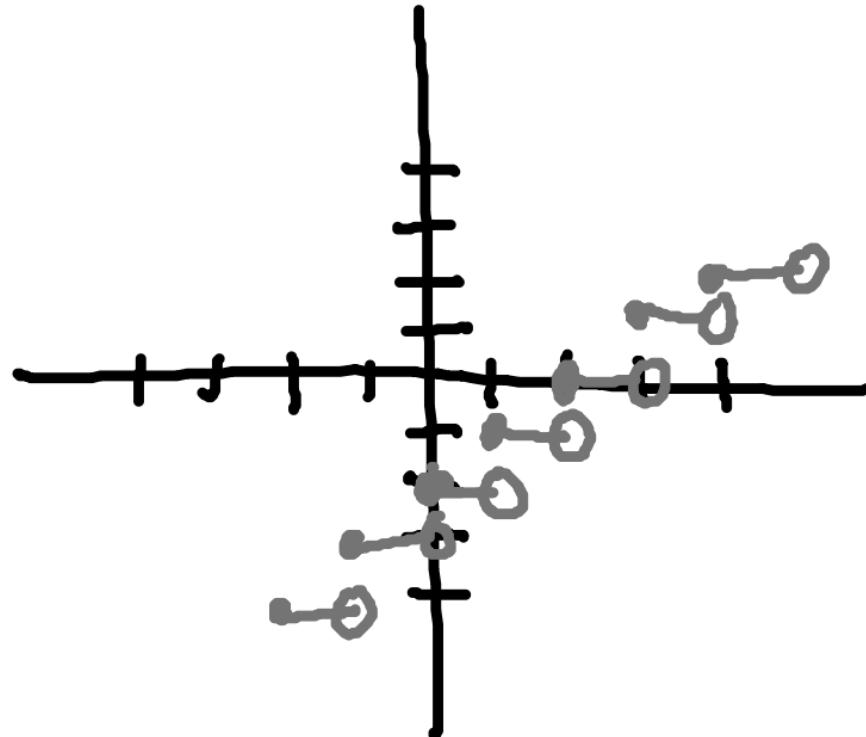
$$\lfloor -2.1 \rfloor = -3$$



Examples

1.) $g(x) = \llbracket x - 2 \rrbracket$

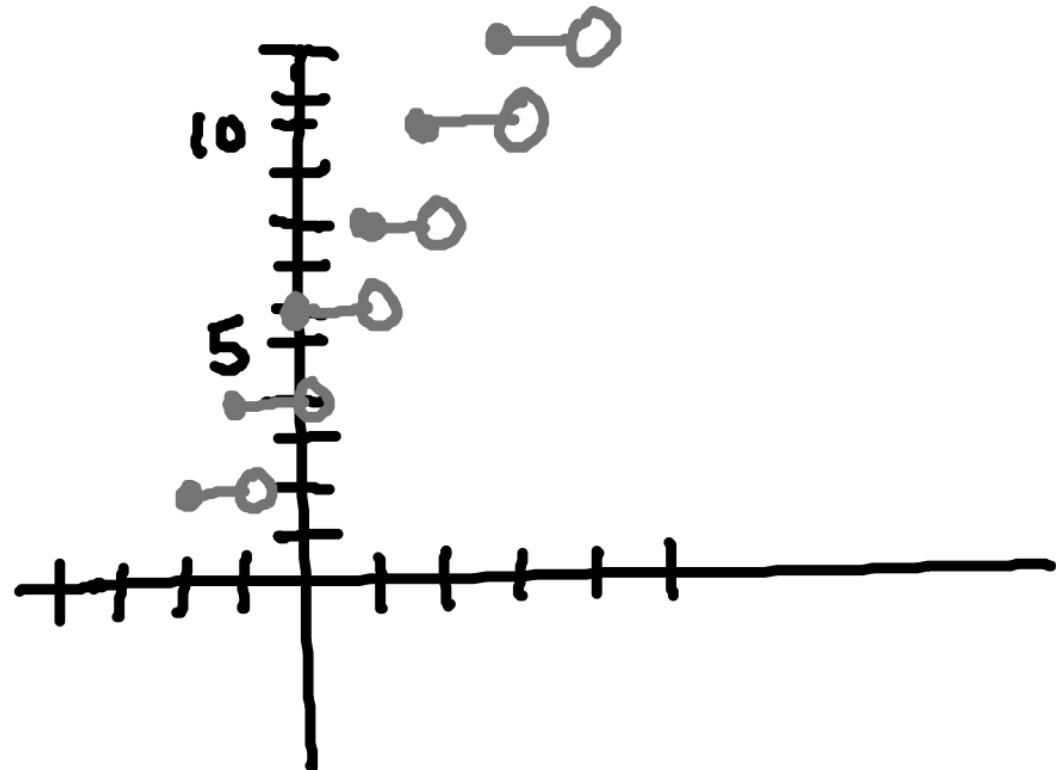
- ▶ $g(2) = 0$
- ▶ $g(2.5) = 0$
- ▶ $g(3.8) = 1$
- ▶ $g(-2.7) = -5$
- ▶ $g(0) = -2$
- ▶ $g(1/2) = -2$
- ▶ $g(-1/2) = -3$



Examples

2.) $h(x) = 2\lceil x + 4 \rceil - 2$

- $h(2) = 10$
- $h(2.5) = 10$
- $h(3.8) = 12$
- $h(-2.7) = 0$
- $h(0) = 6$
- $h(1/2) = 6$
- $h(-1/2) = 4$



Classwork

- ▶ Pg 72 # 53-56, 58
- ▶ Pg 80 # 11-15, 17, 18, 20-24, 27-30, 40

Homework



Pg 71 #30-33

Pg 80 # 9-10

Wkst 1.7 all