Intermediate Algebra
Greatest Integer Function

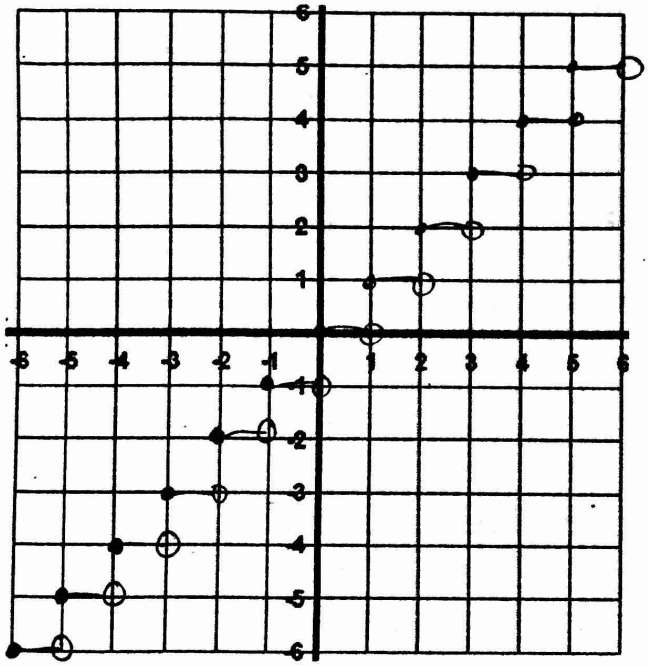
Name: _____

Date: _____ Block: _____

Greatest Integer Function:

Graph in Desmos → Functions → Misc → *floor* $f(x) = floor(x)$

Sketch a graph $f(x) = [\![x]\!]$



height of step

L/R

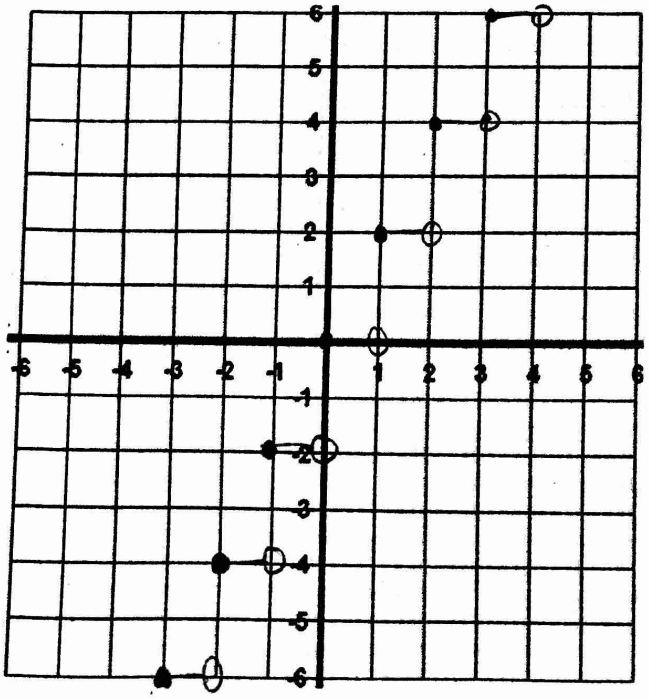
$$f(x) = a\left[\!\left[\frac{x-h}{b}\right]\!\right] + k$$

up/down

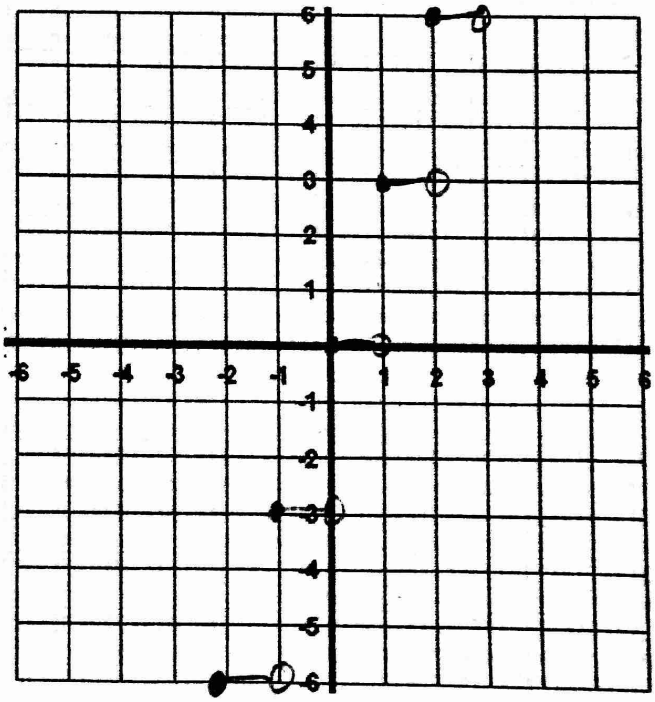
↑ Length of step

LET'S EXPLORE

Sketch a graph: $f(x) = 2[\![x]\!]$



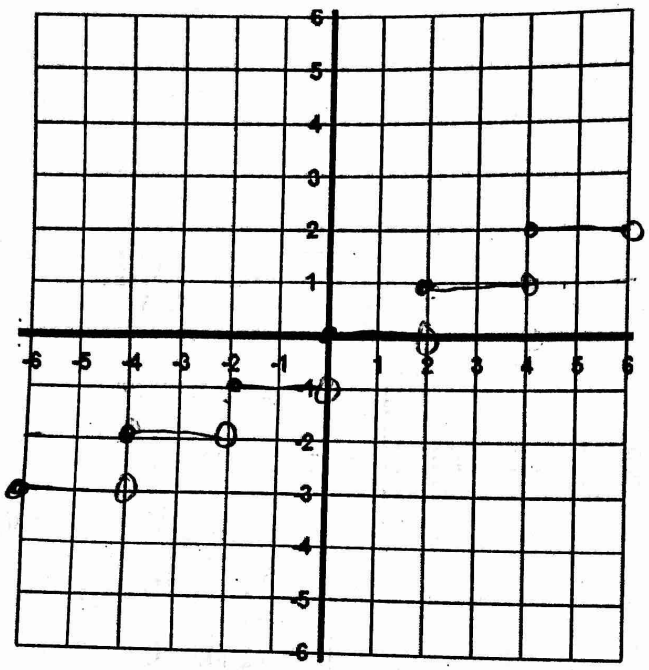
Sketch a graph: $f(x) = 3[\![x]\!]$



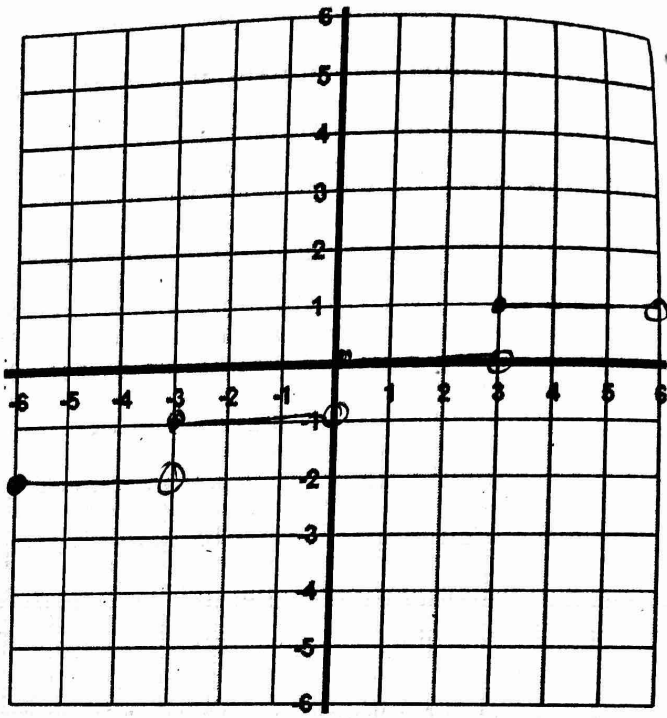
Explain how the graph changed: The "height" of the step

[[2x]]

Sketch a graph: $f(x) = \left[\left[\frac{x}{2}\right]\right]$

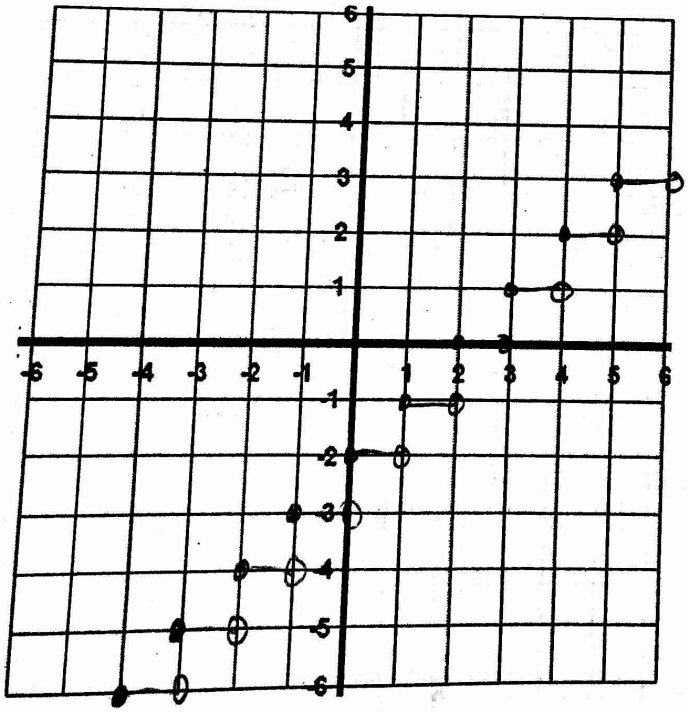


Sketch a graph: $f(x) = \left[\left[\frac{x}{3}\right]\right]$

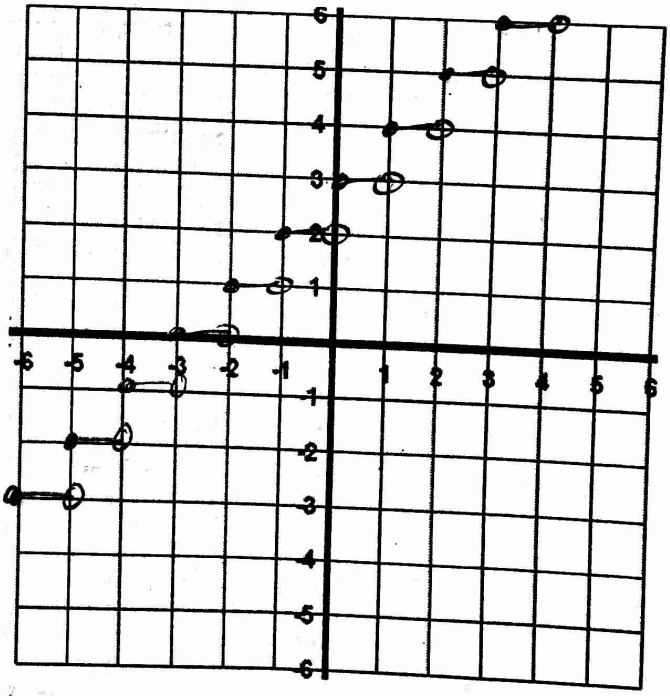


Explain how the graph changed: The "width" of the step changes.

Sketch a graph: $f(x) = [[x - 2]]$

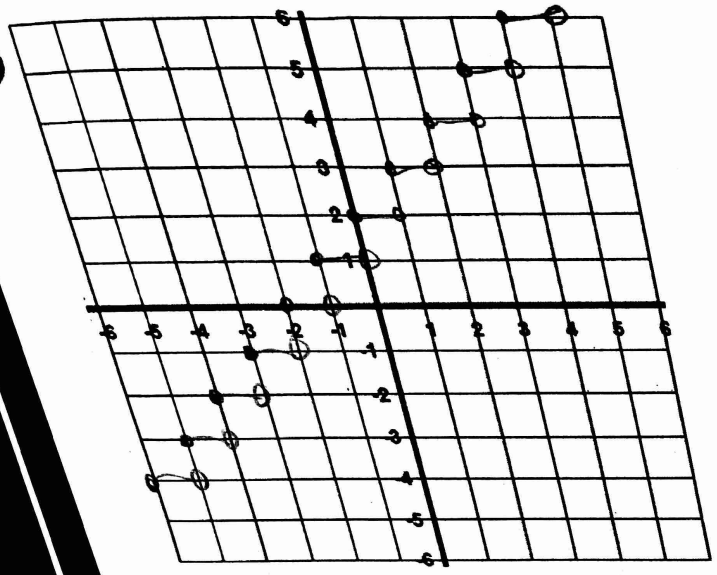


Sketch a graph: $f(x) = [[x + 3]]$

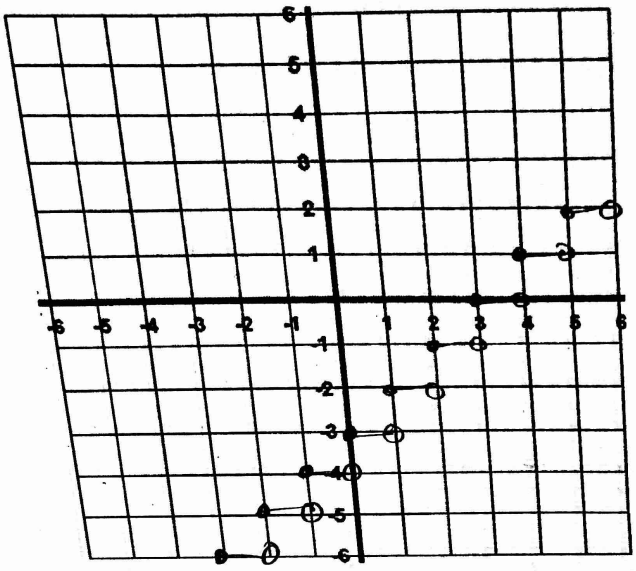


Explain how the graph changed: Changes left or right

Sketch a graph: $f(x) = [\![x]\!] + 2$

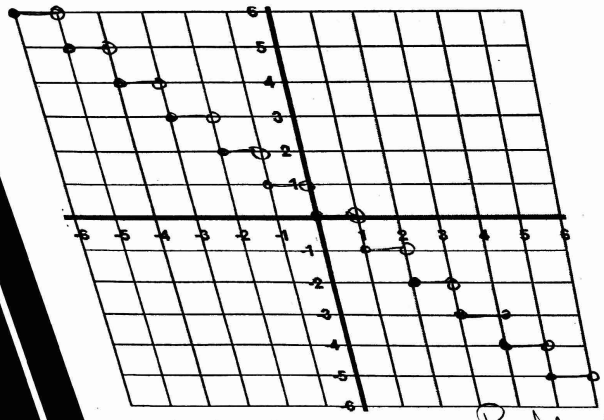


Sketch a graph: $f(x) = [\![x]\!] - 3$

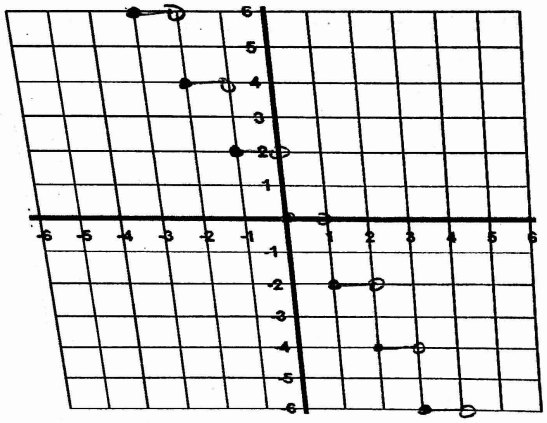


Explain how the graph changed: Up 2 down

Sketch a graph $f(x) = -[\![x]\!]$



Sketch a graph $f(x) = -2[\![x]\!]$



Explain how the graph changed: Reflection

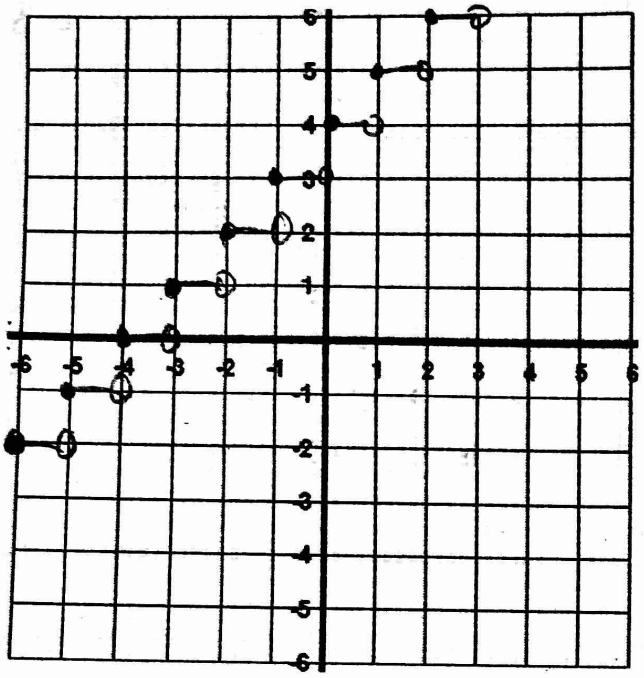
STOP

Sketch the following without using a graphing calculator

1. $f(x) = [\![x]\!] + 4$

Describe the Transformations:

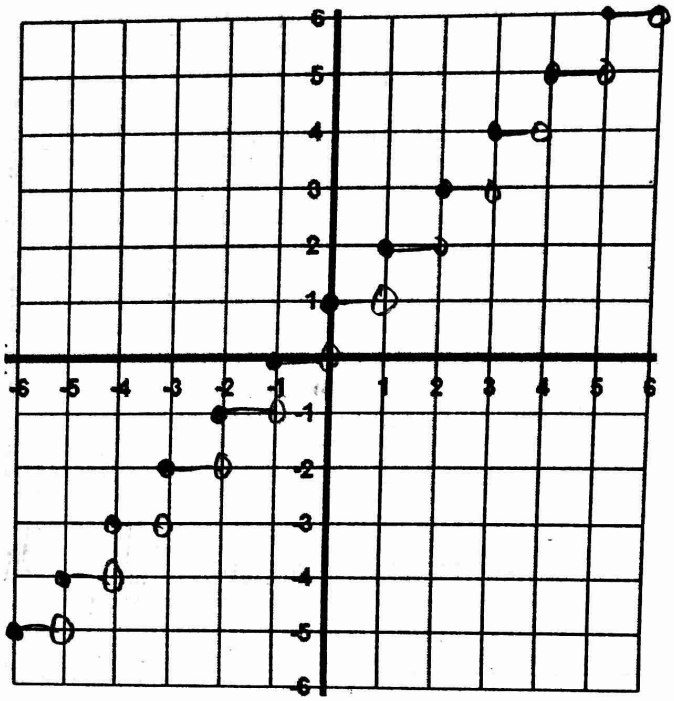
4 up



2. $f(x) = [\![x - 1]\!] + 2$

Describe the Transformations:

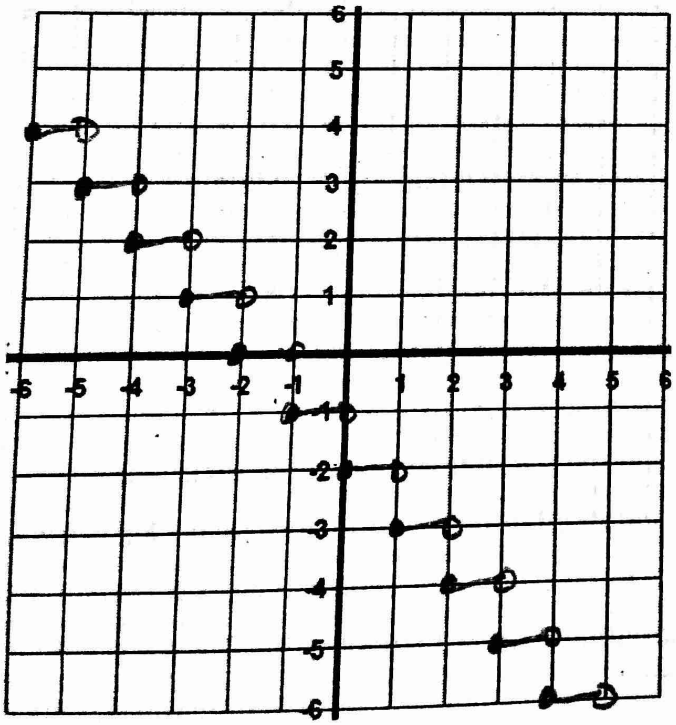
2 up 1 right



3. $f(x) = -[\![x]\!] - 2$

Describe the Transformations:

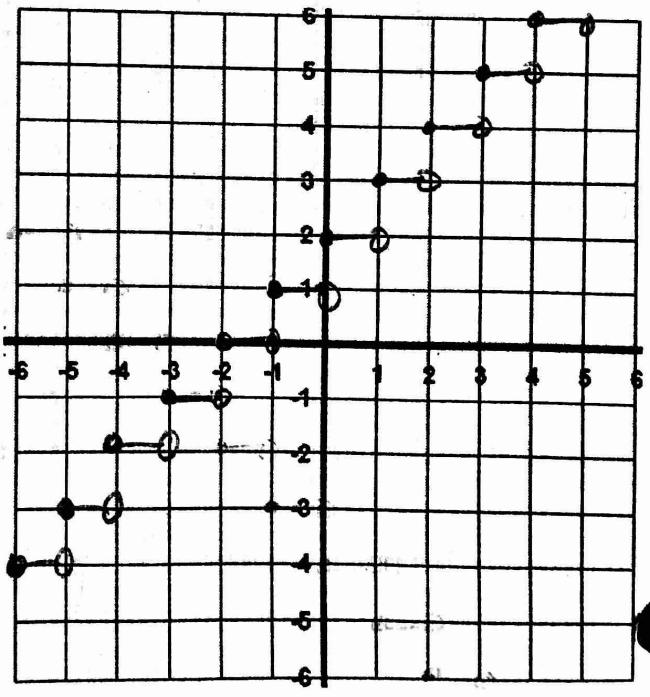
Reflect Down 2



4. $f(x) = [\![x + 3]\!] - 1$

Describe the Transformations:

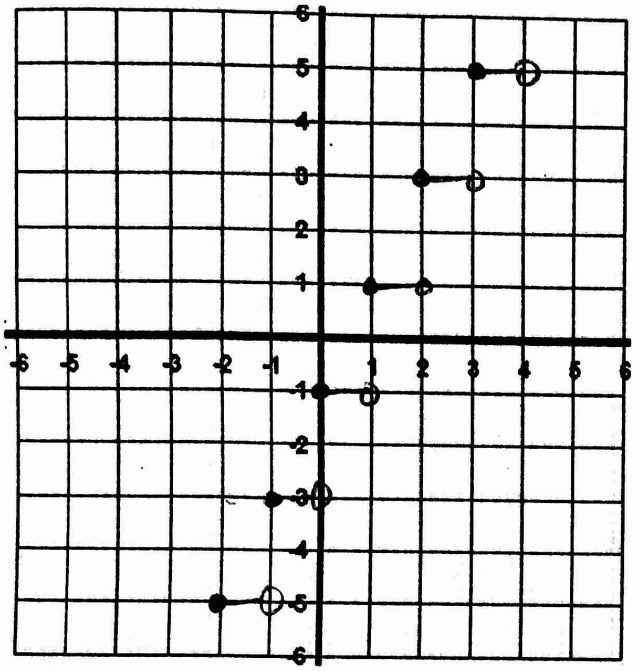
Left 3 Down 1



5. $f(x) = 2[\![x]\!] - 1$

Describe the Transformations:

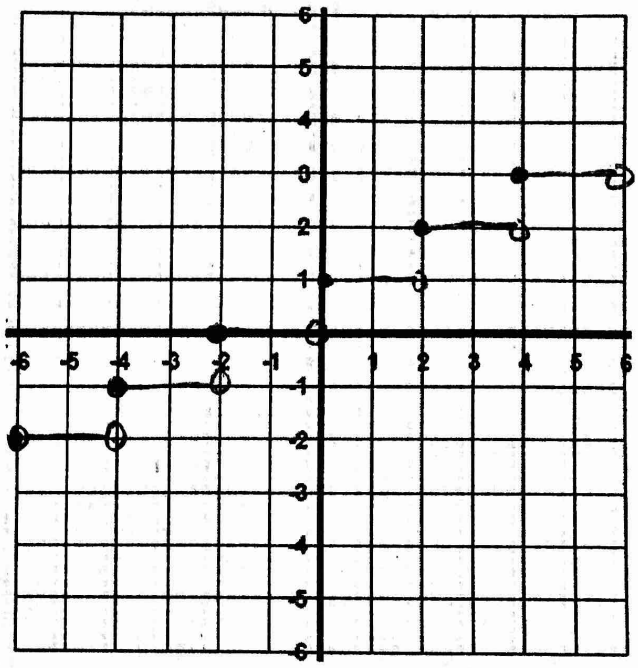
Down 1 Height jump 2



6. $f(x) = \left[\!\left[\frac{x}{2}\right]\!\right] + 1$

Describe the Transformations:

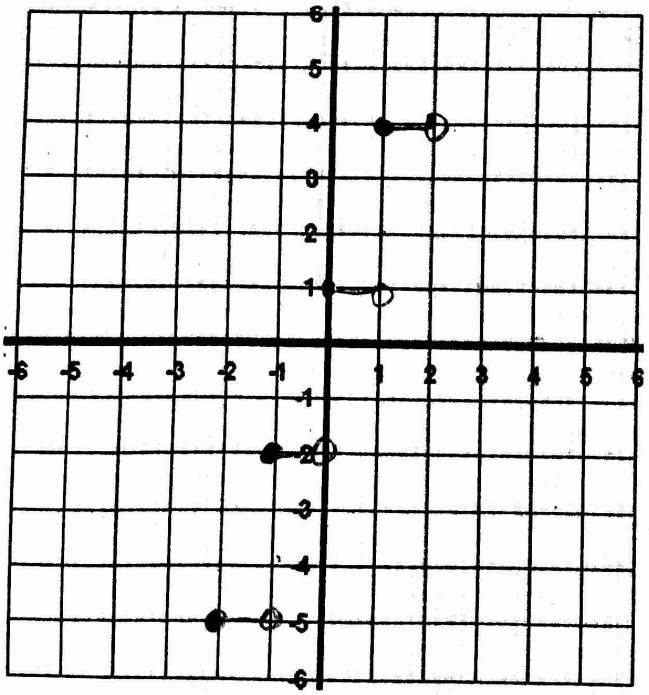
Up 1 Length 2



7. $f(x) = 3[\![x]\!] + 1$

Describe the Transformations:

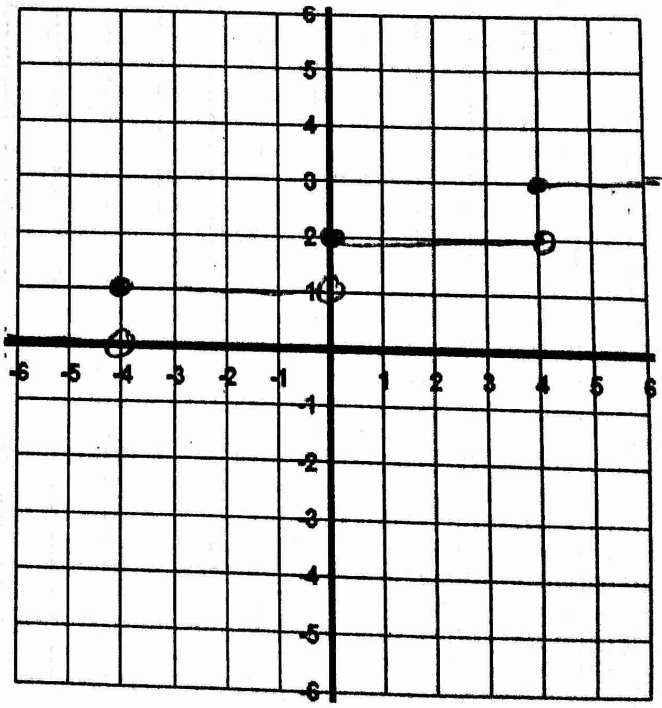
Jump 3 Up 1



8. $f(x) = \left[\!\left[\frac{x}{4}\right]\!\right] + 2$

Describe the Transformations:

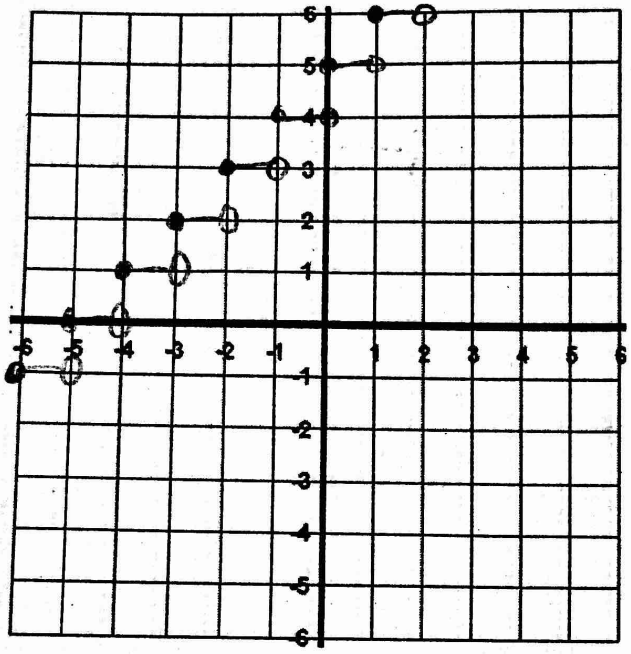
Length 4 Up 2



9. $f(x) = [\![x + 2]\!] + 3$

Describe the Transformations:

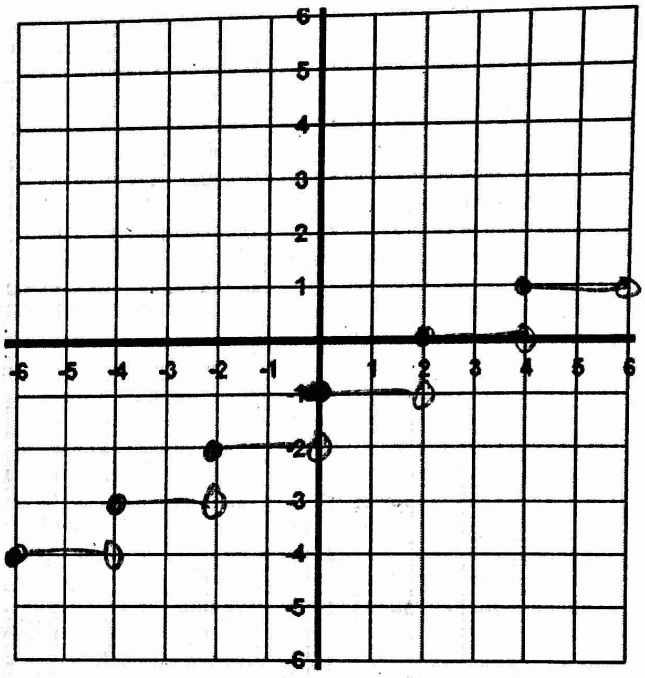
Up 3 Left 2



10. $f(x) = \left[\!\left[\frac{x-2}{2}\right]\!\right]$

Describe the Transformations:

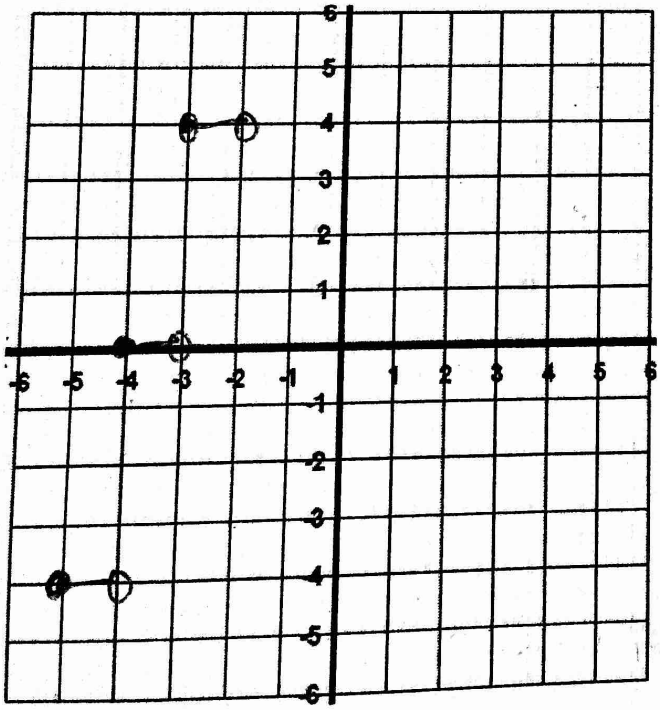
Right 2 Width 2



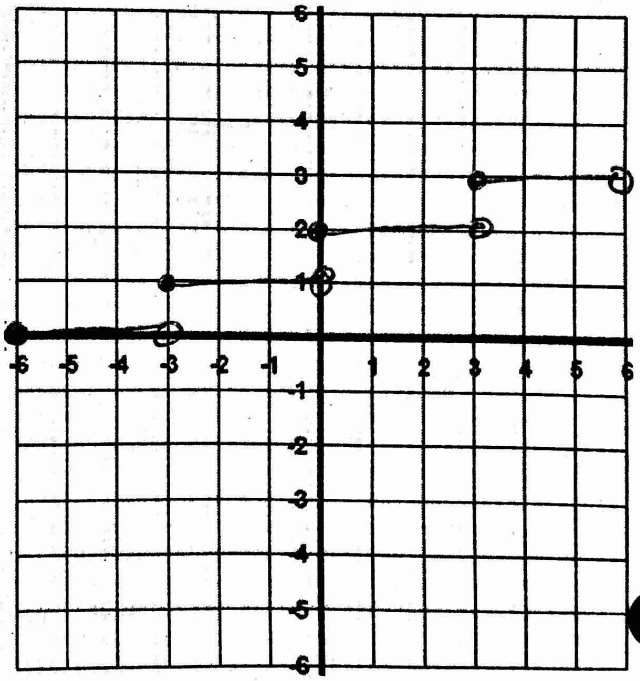
11. $f(x) = 4[\![x + 4]\!]$

Describe the Transformations:

Jump 4 Left 4



12. $f(x) = \left[\!\left[\frac{x+6}{3}\right]\!\right]$

Describe the Transformations:

Left 6 Width 3