MEMORY AID TIPS 2.6

Greatest Integer Function Parameters "h" & "k"

Parameters		Geometric Transformations	Important Additional Information
a	If |a| > 1	Vertical Stretch	• The value of |a| determines the vertical distance between each step
	If 0 <|a| < 1	Vertical Shrink	
	If a < 0	Reflection off x - axis	• If the value of |a| is a number other that 1 and it is negative, there are 2 geometric transformation
b	If |b| > 1	Horizontal Shrink	
	If 0 <|b| < 1	Horizontal Stretch	• The horizontal length of each step is |1/b| • If the value of |b| is a number other that 1 and it is negative, there are 2 geometric transformation
	If b < 0	Reflection off y - axis	
h	If h > 0	Translation right	Be careful when equation is give. Examples:
	If h < 0	Translation left	$y = \left[x - 3 \right] + 2$ (h, k) = (3, 2)
k	If k > 0	Translation up	
	If k < 0	Translation down	$y = \left[x + 3 \right] + 2$ (h, k) = (-3, 2)

$$y = a\left[b(x-h)\right] + k$$

② When k > 0

① $y = \left[(x-0)\right] + \underline{}4\underline{}$

a = 1   b = 1
h = 0   k = __4__

③
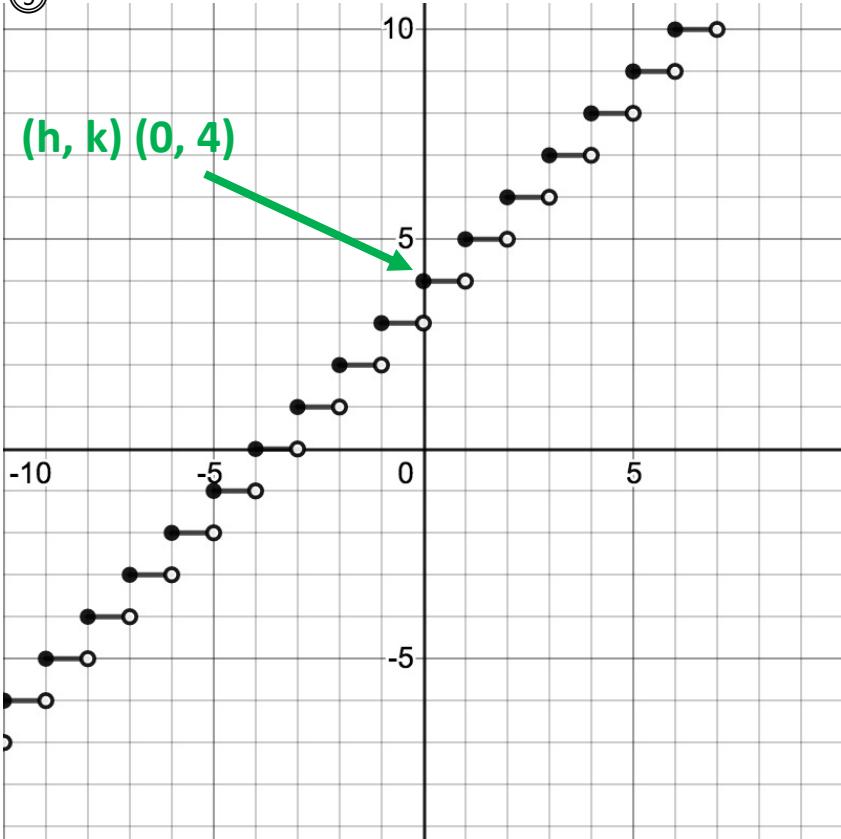
(h, k) (0, 4)

④

x	y
[0, 1[	4
[1, 2[	5
[2, 3[	6
[3, 4[	7
.....	....

⑤ ***The geometric transformation of this function is:***
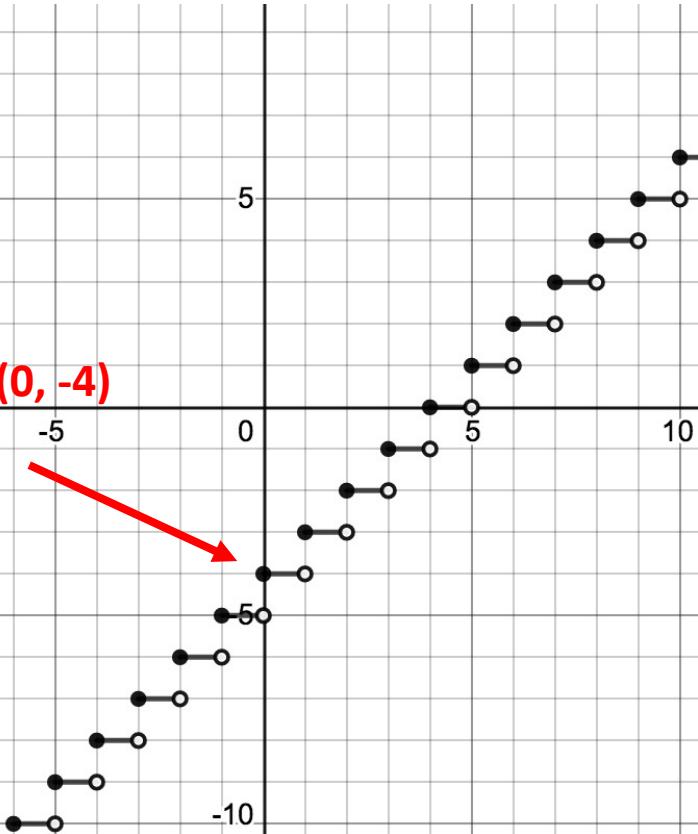
Translation 4 units upward

$$y = a\left[b\left(x-h\right)\right] + k$$

①

②

$$y = \left[\left(x-0\right)\right] + \underline{\;-4\;}$$

a = 1   b = 1

h = 0   k = _-4_

③

(h, k) (0, -4)

④

x	y
[0, 1[	-4
[1, 2[	-3
[2, 3[	-2
[3, 4[	-1
.....	....

The geometric transformation of this function is:

⑤

Translation 4 units downward

① $y = a\left[b(x-h)\right] + k$

$y = \left[(x-3)\right]$

② When h > 0

$a = 1 \qquad b = 1$

$h = \underline{\ 3\ } \qquad k = 0$

③
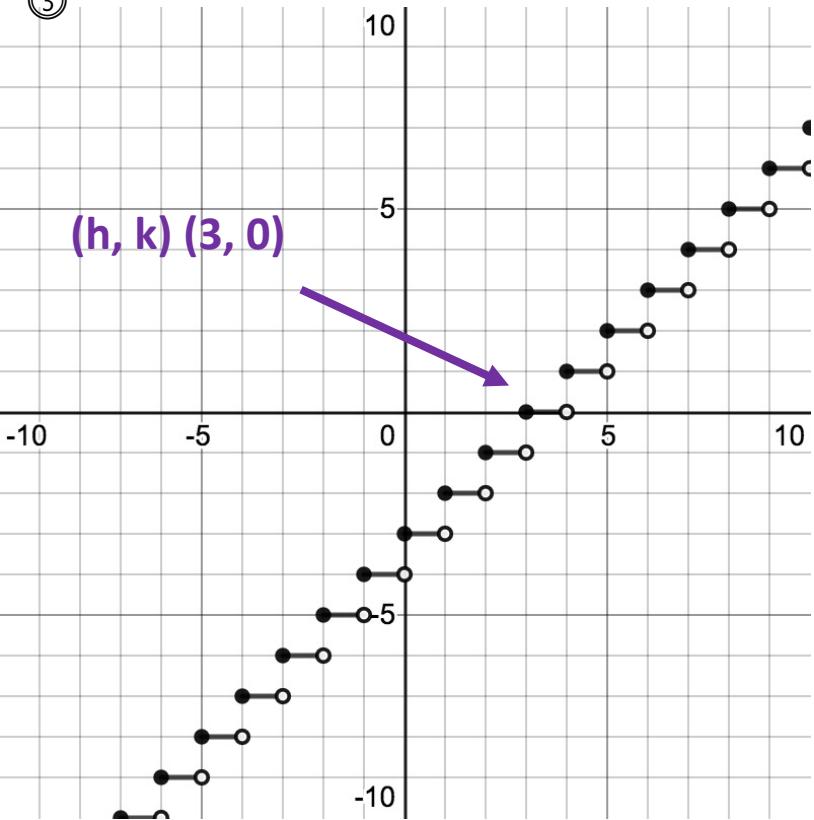
(h, k) (3, 0)

④

x	y
[0, 1[	-3
[1, 2[	-2
[2, 3[	-1
[3, 4[	0
.....	....

⑤ **_The geometric transformation of this function is:_**

Translation 3 units right

①
$$y = a\left[b(x-h)\right] + k$$
$$y = \left[(x - {}^{-}2)\right] \longrightarrow y = \left[(x+2)\right]$$

② When h < 0

a = 1   b = 1
h = __-2__   k = 0

③

(h, k) (-2, 0)
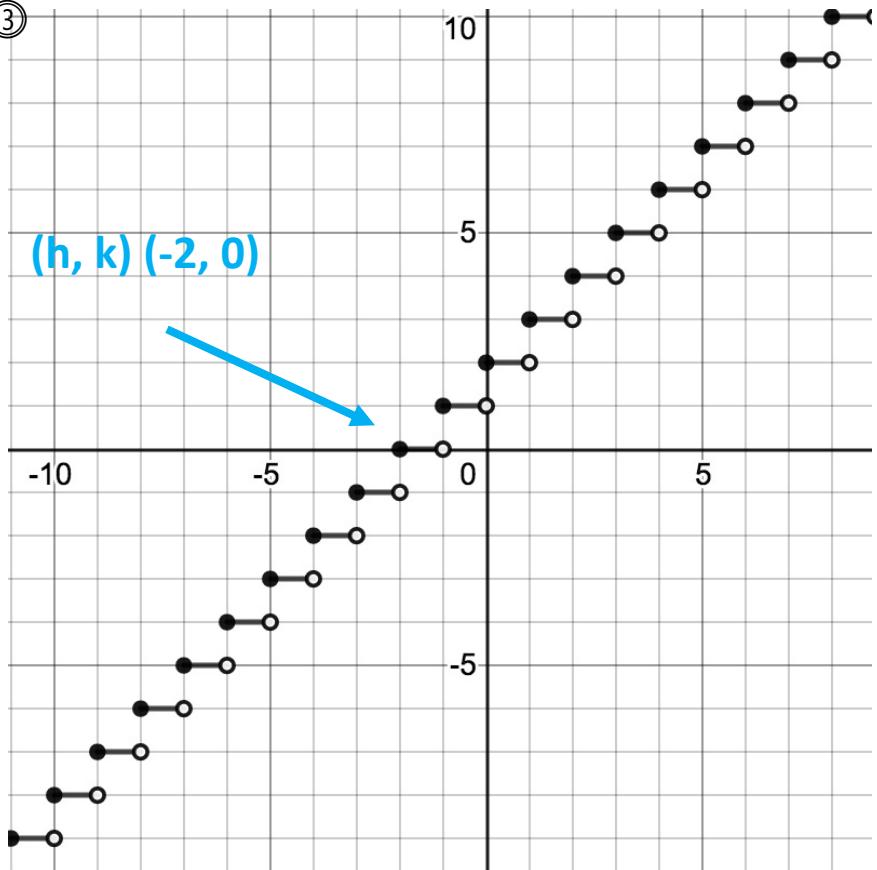
④

x	y
[0, 1[	2
[1, 2[	3
[2, 3[	4
[3, 4[	5
.....	....

The geometric transformation of this function is:

⑤ Translation 2 units left