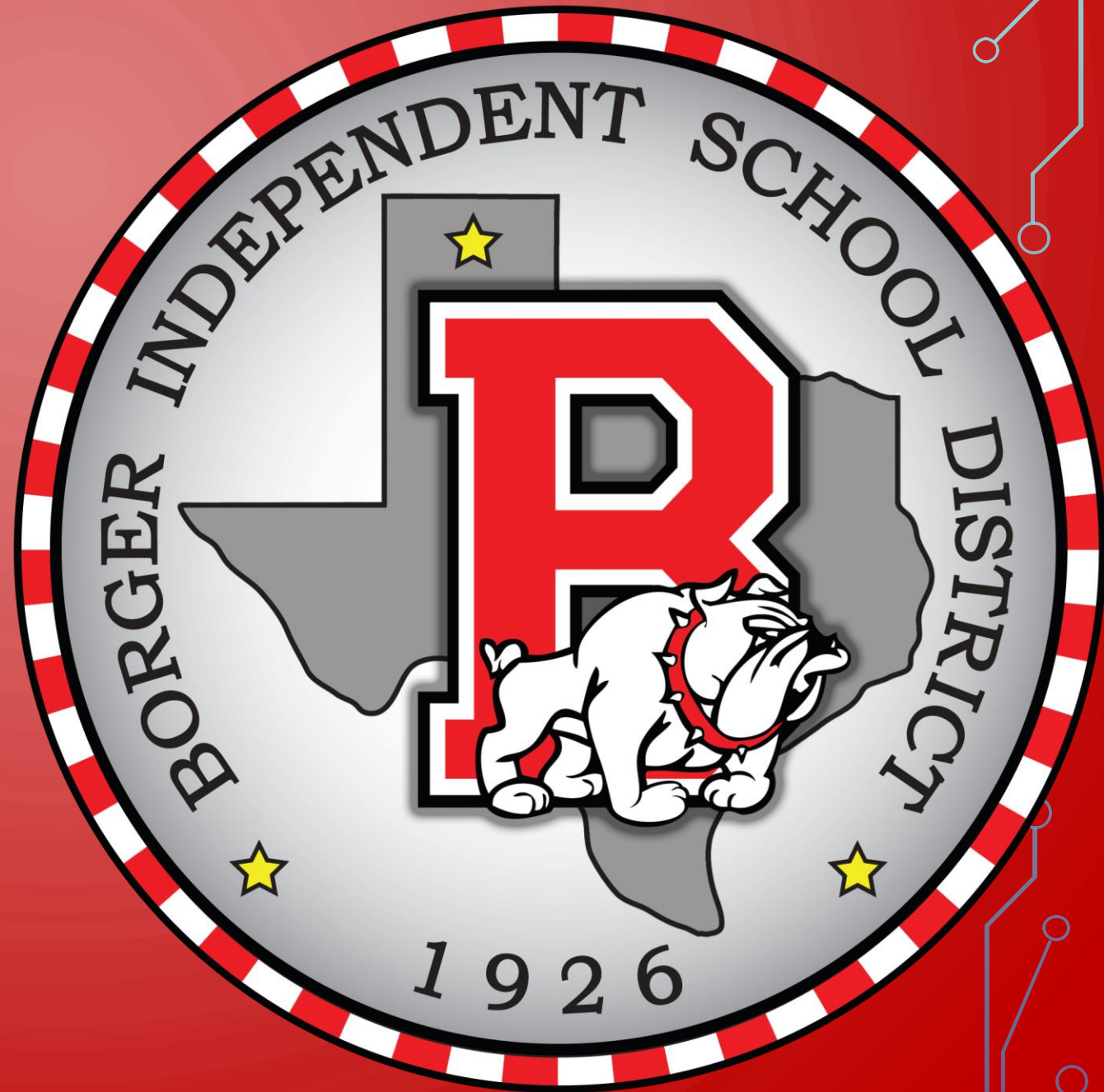

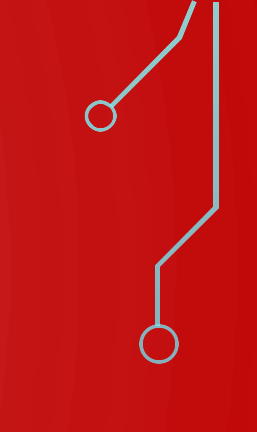
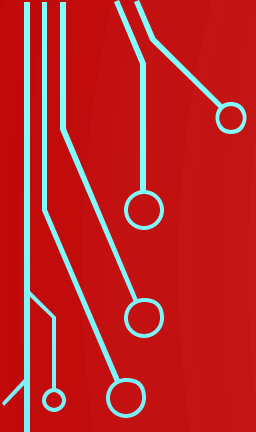


# BOARD NOTES

4 SEPTEMBER 2019





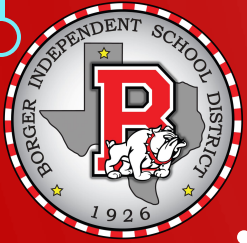
2A.2 (A) graph the functions  $f(x) = x^2$ ,  $f(x) = \sqrt{x} = \sqrt[2]{x}$ ,  $f(x) = 1/x$ ,  $f(x) = \sqrt[3]{x}$ ,  $f(x) = x^3$ ,  $f(x) = |x|$ ,  $f(x) = b^x$ ,  $f(x) = \log_b x$  where  $b$  is 2, 10, and  $e$ , and, when applicable, analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum given an interval;

2A.2 (D) use the composition of two functions, including the necessary restrictions on the domain, to determine if the functions are inverses of each other;

2A.7 (I) write the domain and range of a function in interval notation, inequalities, and set notation.



We will be able determine the effect on the graph  $f(x) + a, f(x + a), af(x), f(ax)$ .

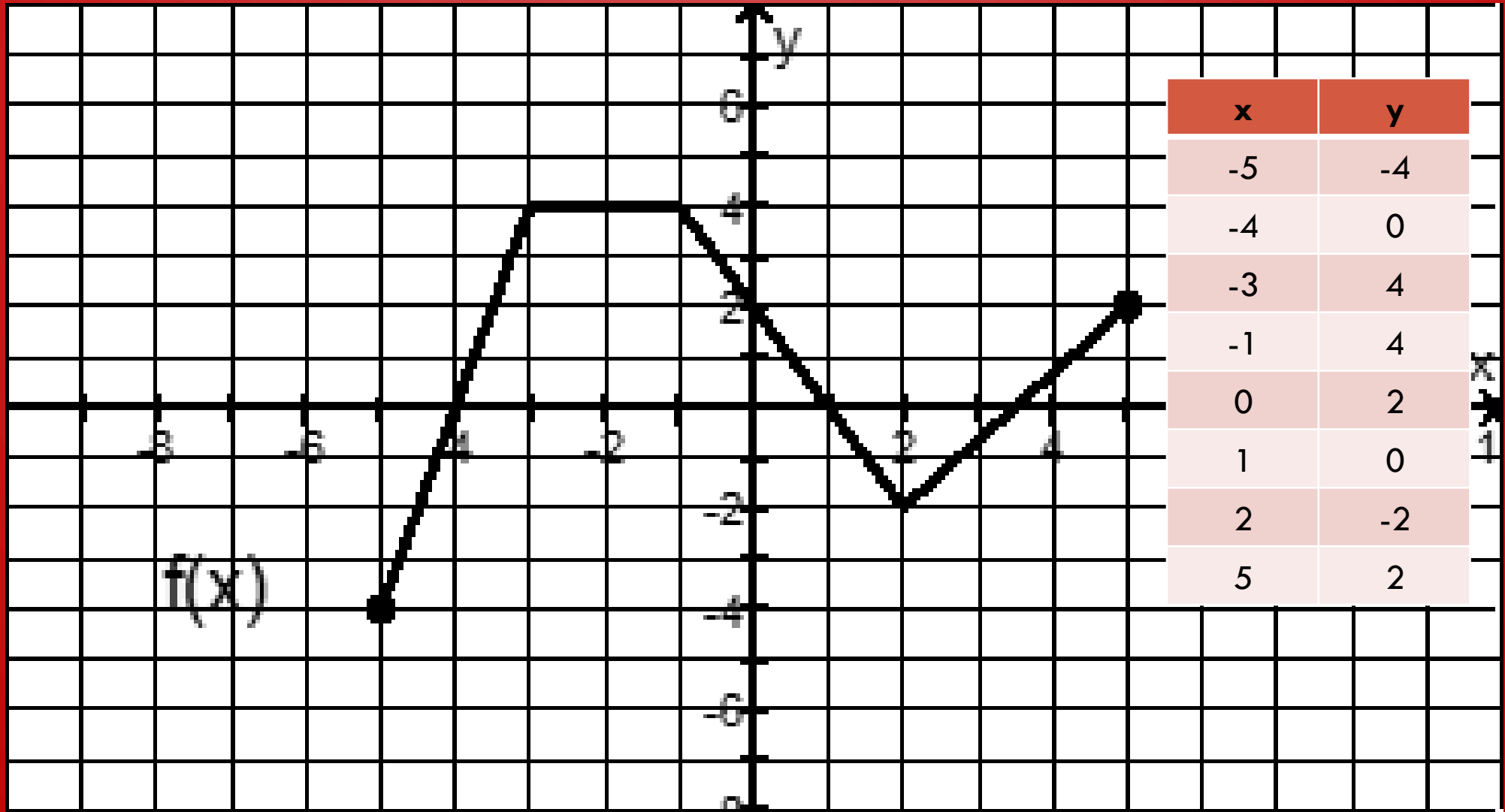


### WHAT WE NEED:

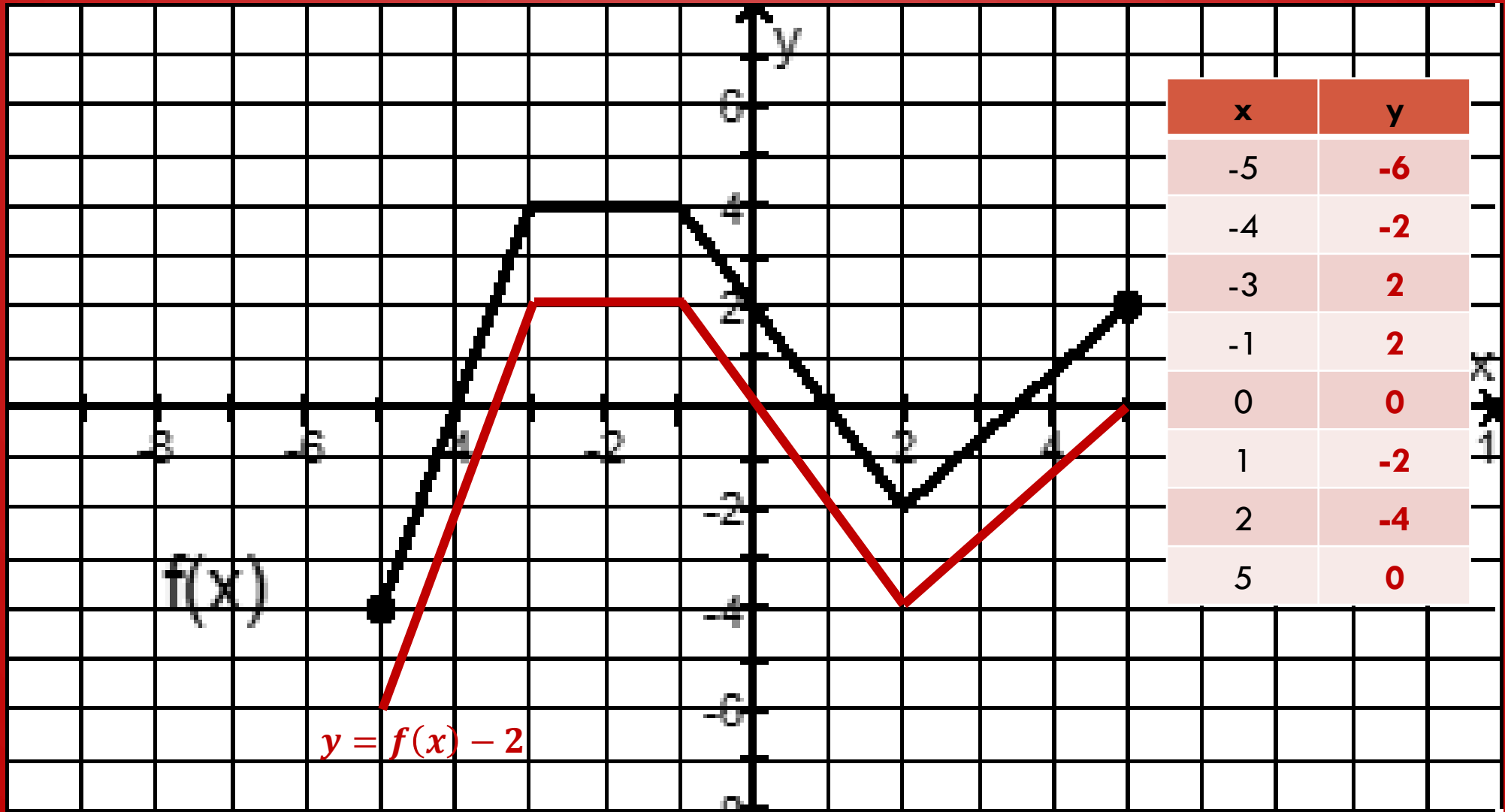
- TI – 84
- Definition of: Transformations

### I WILL BE ABLE TO COMPLETE MY HOMEWORK GIVING THE

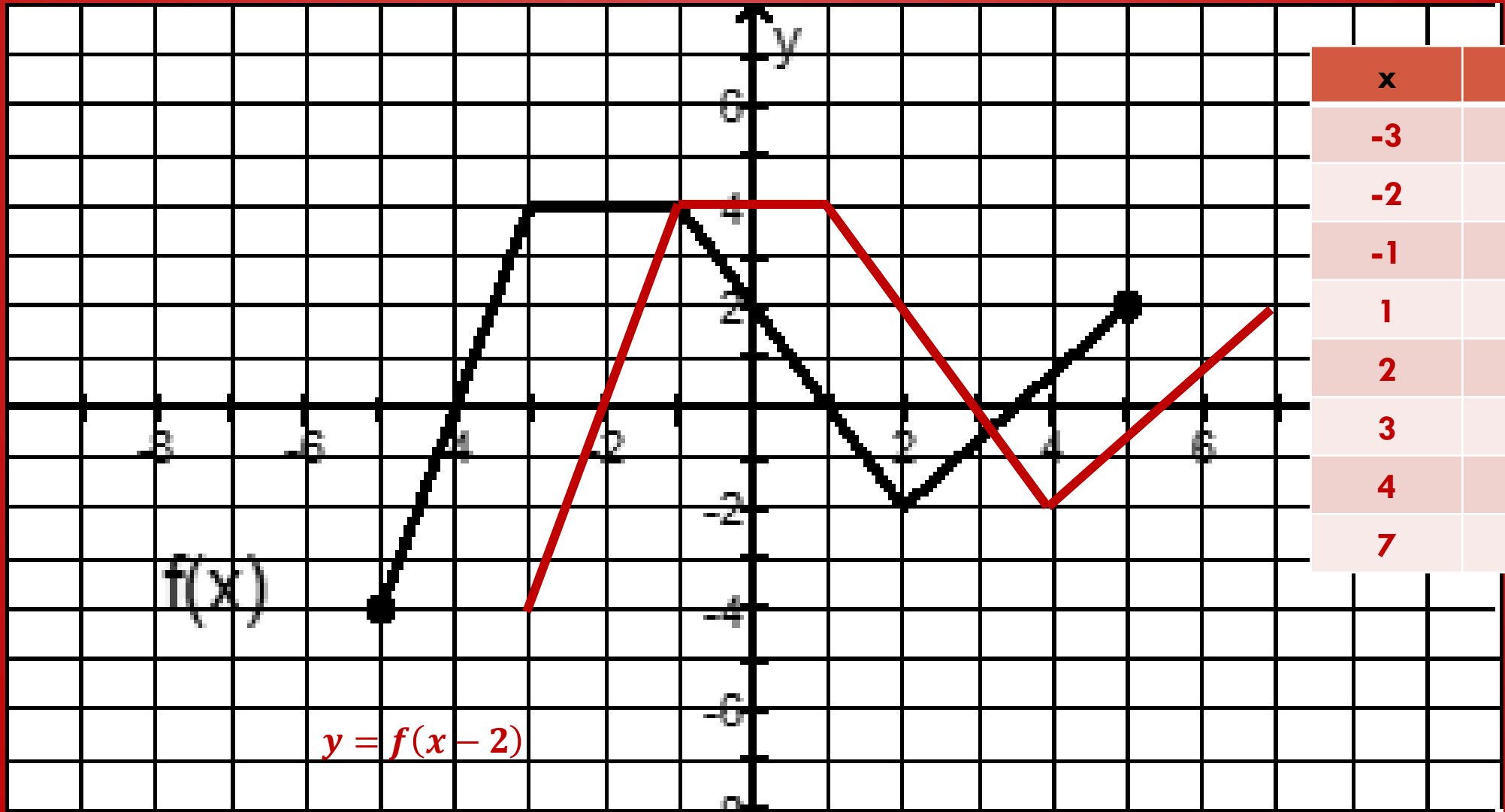
- Domain
- Range
- Intercepts (if any)
- Intervals of: Increasing / Decreasing / Constant
- Reflections
- Even / Odd / Neither



x	y
-5	-4
-4	0
-3	4
-1	4
0	2
1	0
2	-2
4	0
5	2

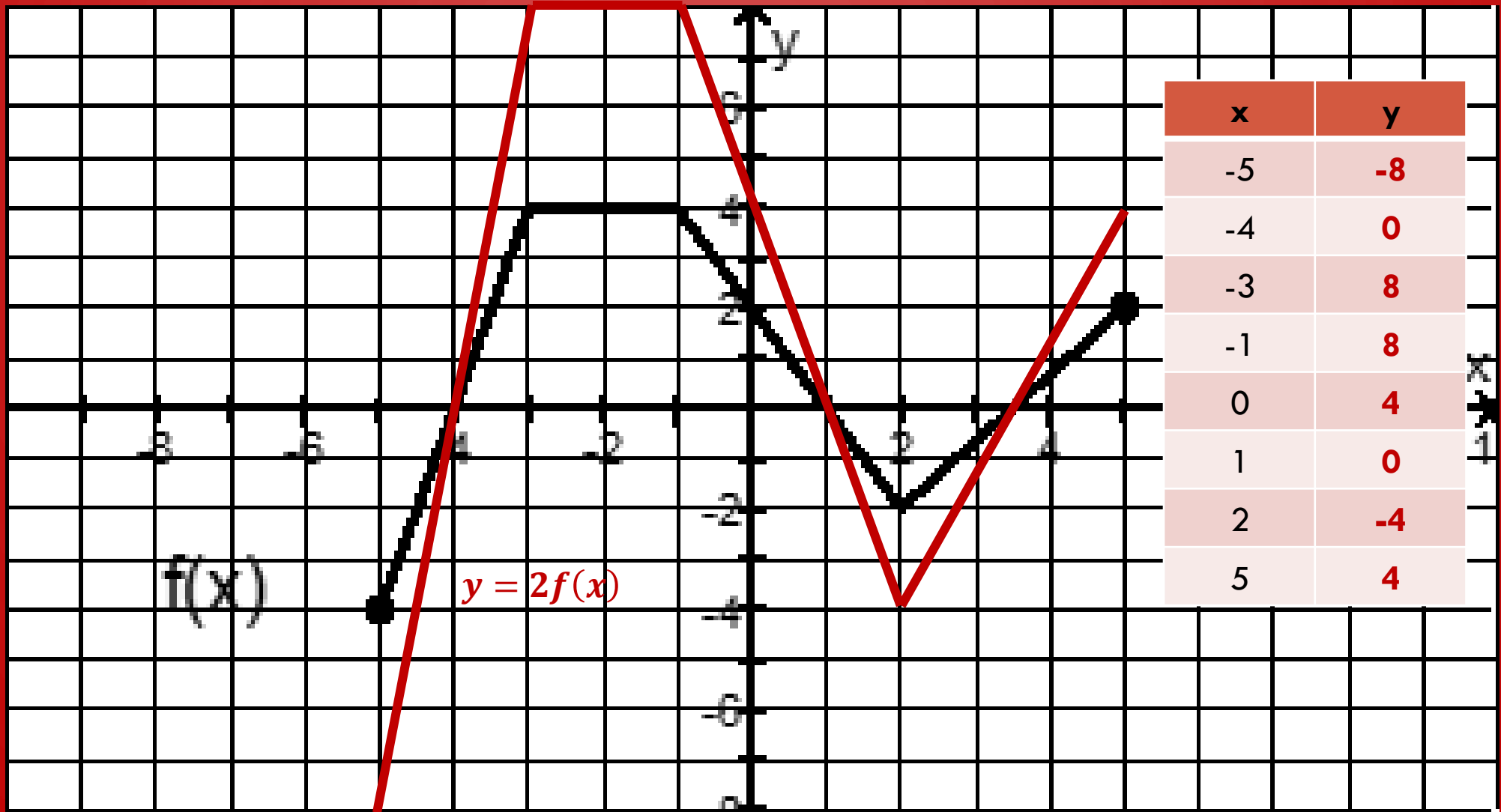


Down 2 or D2

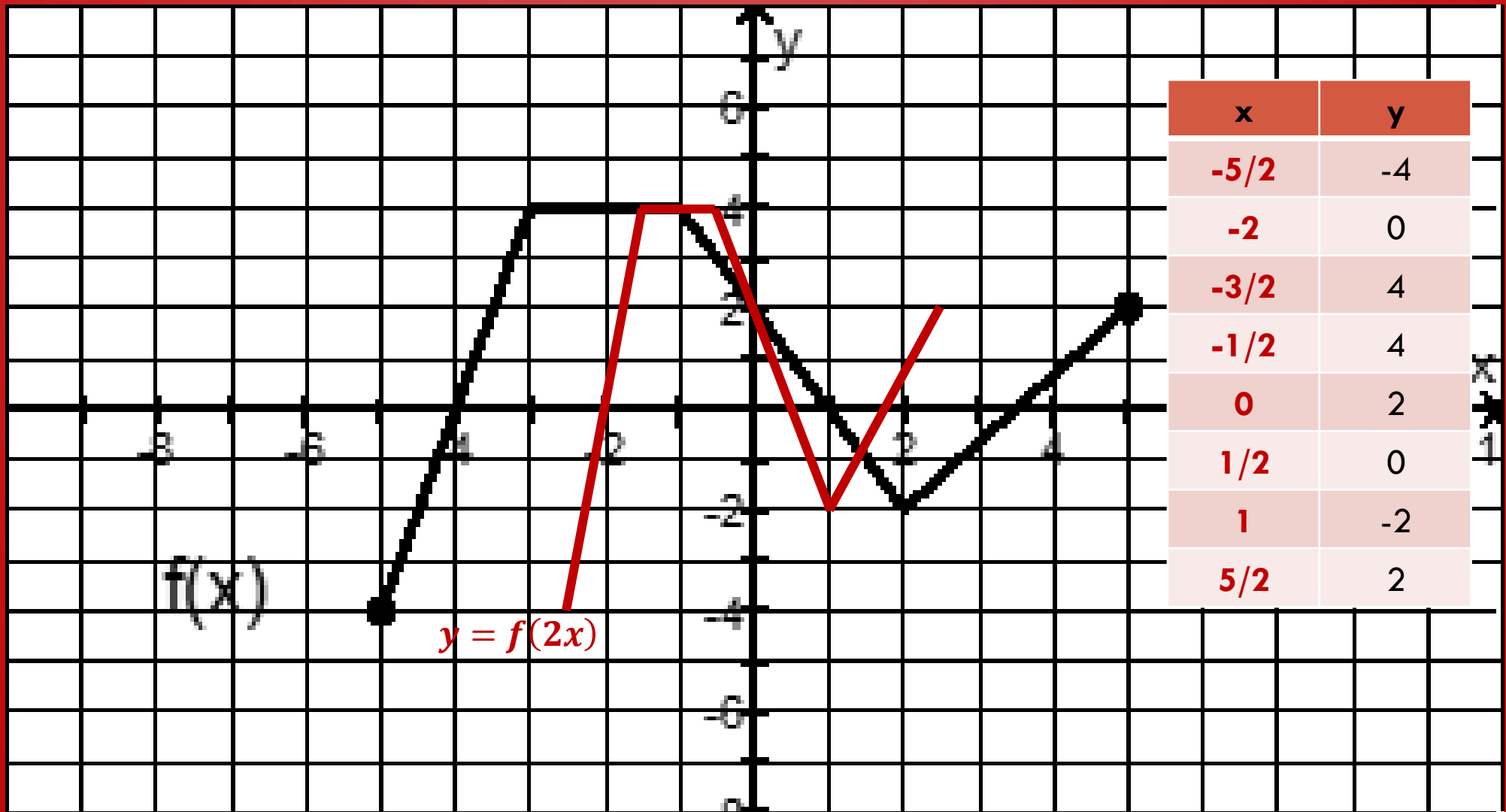


x	y
-3	-4
-2	0
-1	4
1	4
2	2
3	0
4	-2
7	2

Right 2 or R2

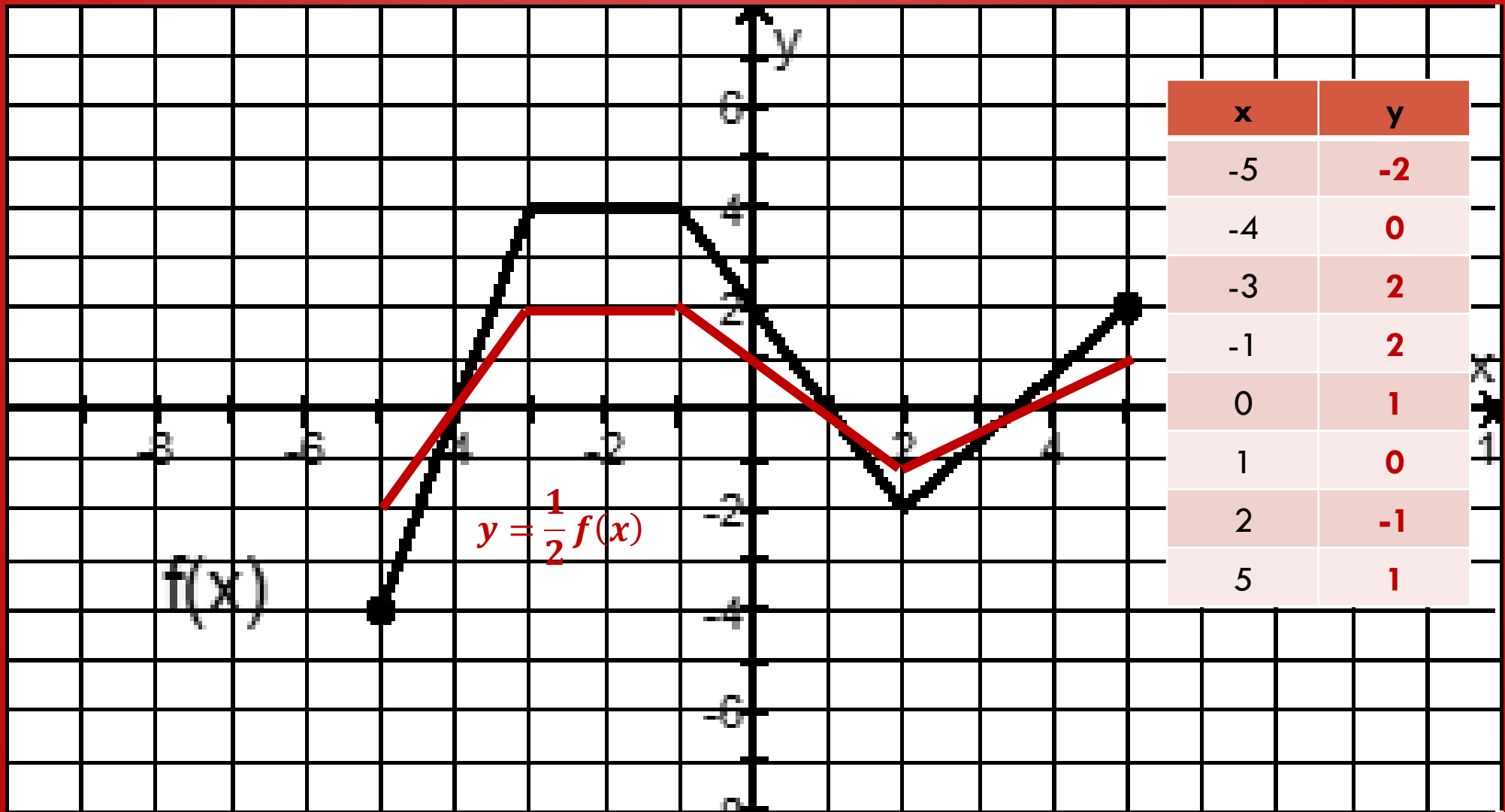


Vertical Stretch 2 or VS2

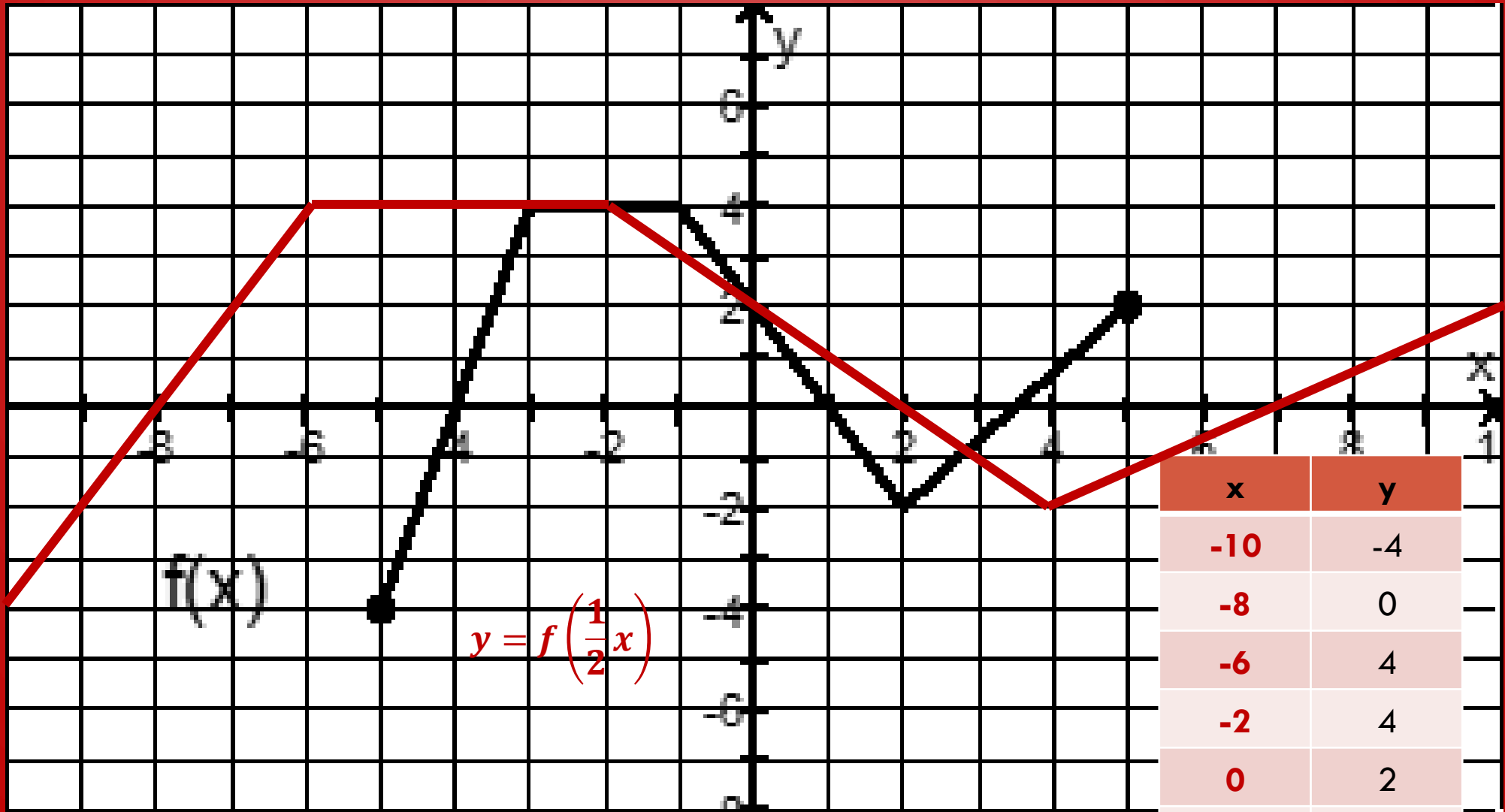
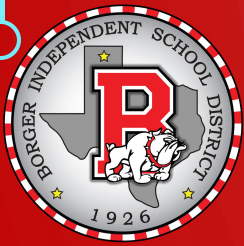


Horizontal Compression 2 or HC2



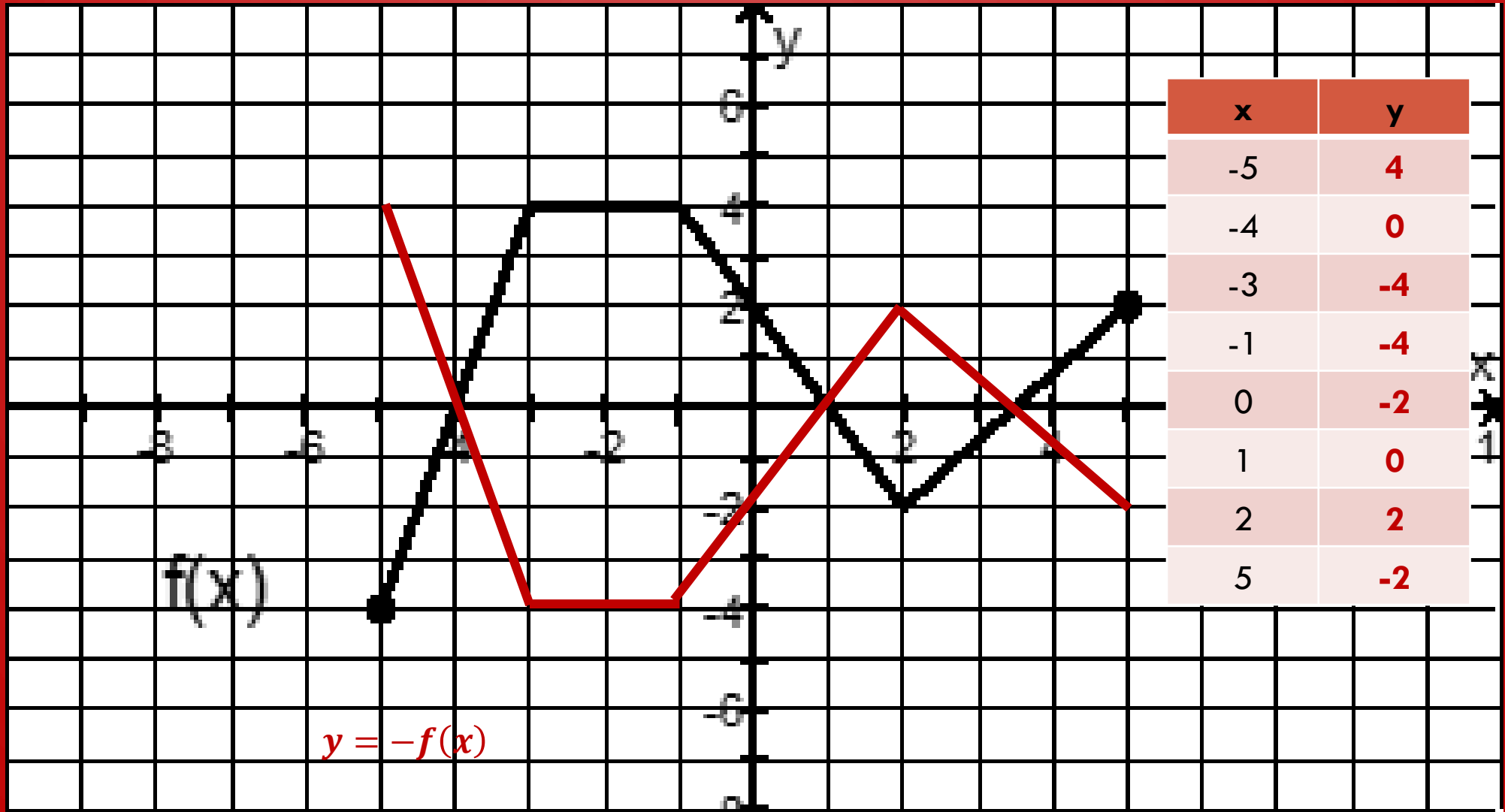


Vertical Compression 2 or VC2

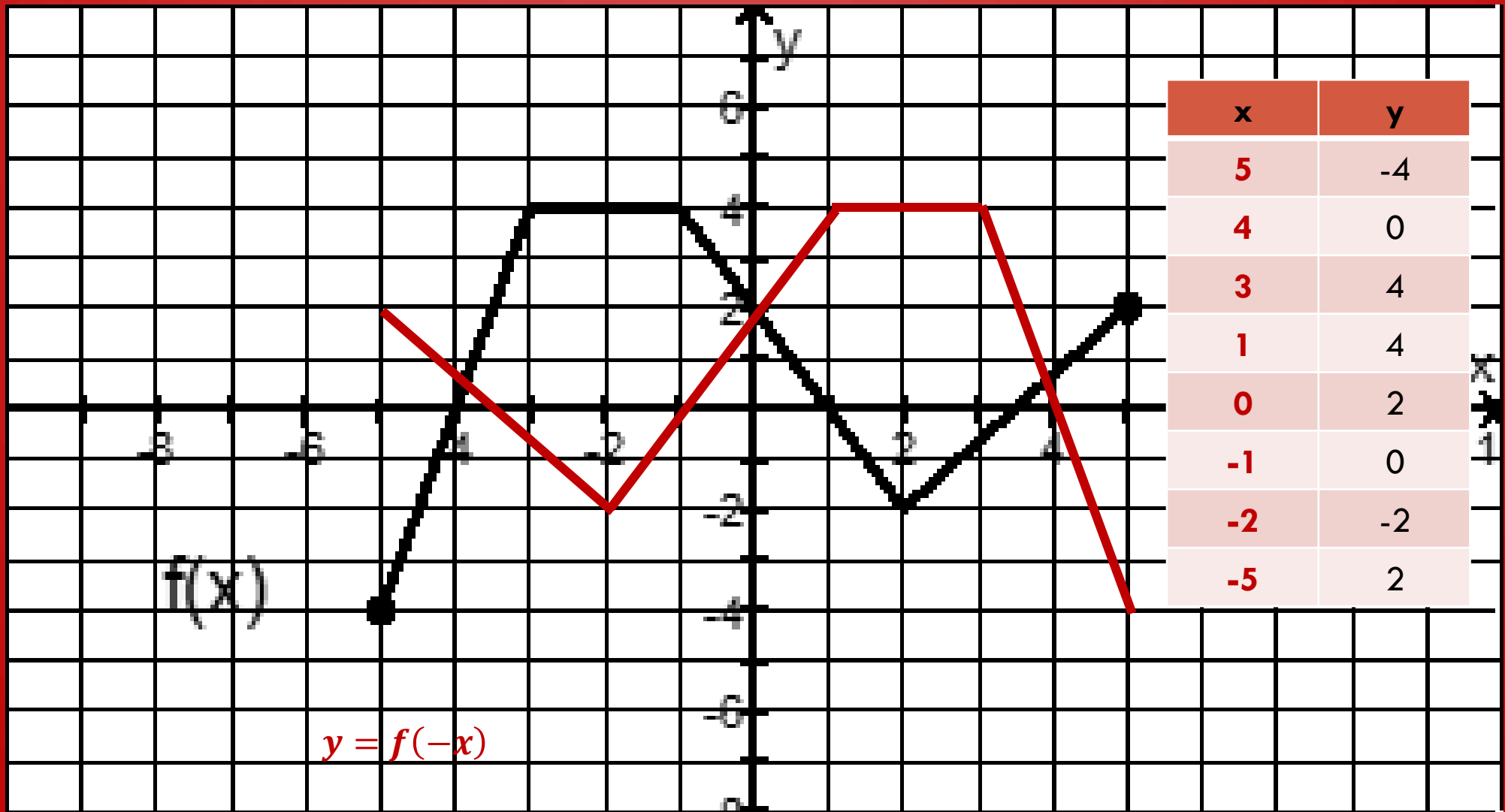


x	y
-10	-4
-8	0
-6	4
-2	4
0	2
2	0
4	-2
10	2

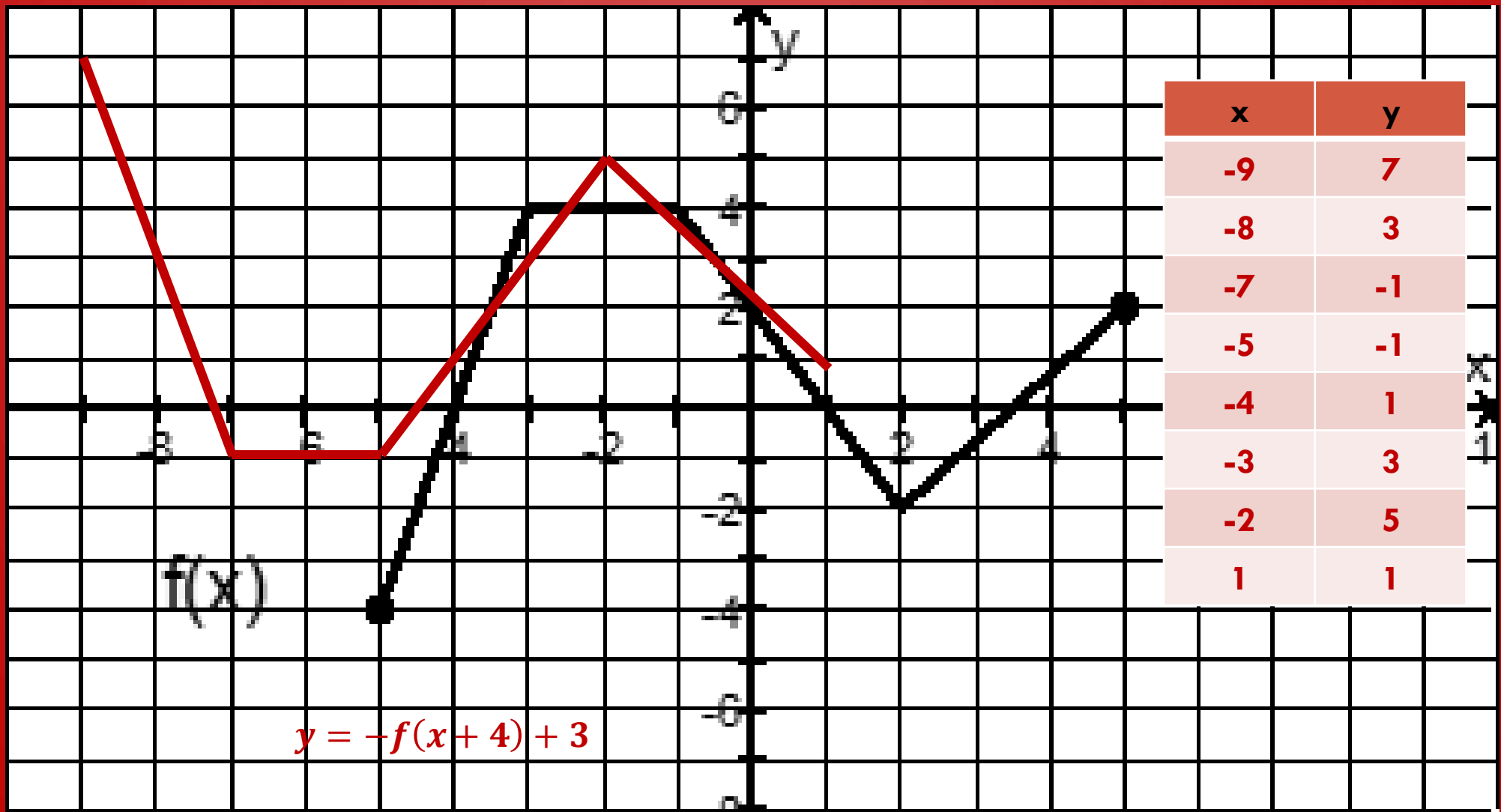
Horizontal Stretch 2 or HS2



Reflected across x-axis or RAX



Reflected across y-axis or RAY



$f(x)$

$$y = -f(x + 4) + 3$$

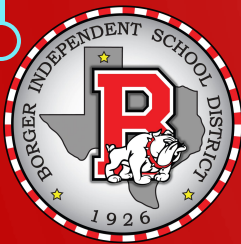
Reflected across x-axis or RAX  
Left 4 or L4  
Up 3 or U3

$$f(x) = x^2 - x$$

NEITHER

$$\begin{aligned} 1) f(-x) &= (-x)^2 - (-x) \\ &= x^2 + x \\ &\neq f(x) \end{aligned}$$

$$\begin{aligned} 2) -f(x) &= -(x^2 - x) \\ &= -x^2 + x \\ &\neq f(-x) \end{aligned}$$

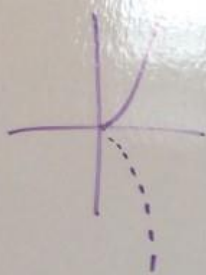


1.1 (F)  
analyze  
mathematical  
relationships to  
connect  
and communicate  
mathematical ideas

1.1 (G)  
display, explain,  
and justify  
mathematical ideas  
and arguments  
using precise  
mathematical  
language in  
written or oral  
communication



X-AXIS



No NA

$$y = f(x) - 2$$

x	y
-6	-6
-2	-2
2	2
2	2
0	0
-2	-2
-4	-4
2	2

No Change

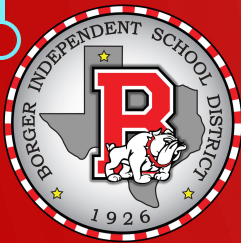
-4-2  
DZ

$$y = f(x-2)$$

-3	-4
-2	0

No Change

$x-2 = -5$   
 $x = -3$   
 $x-2 = -4$   
 $x = -2$   
RZ

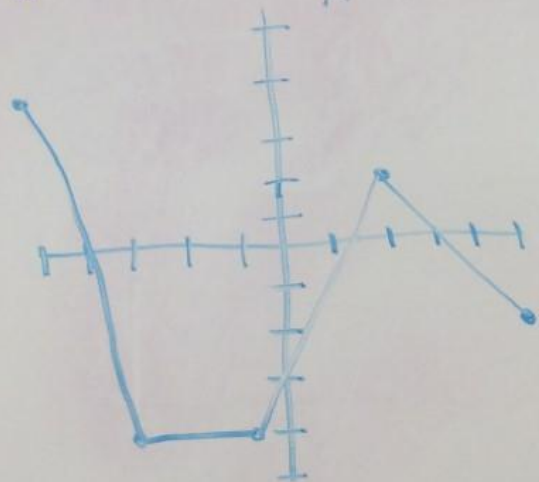


B)

#7

Reflected  
x-axis

$-f(x)$



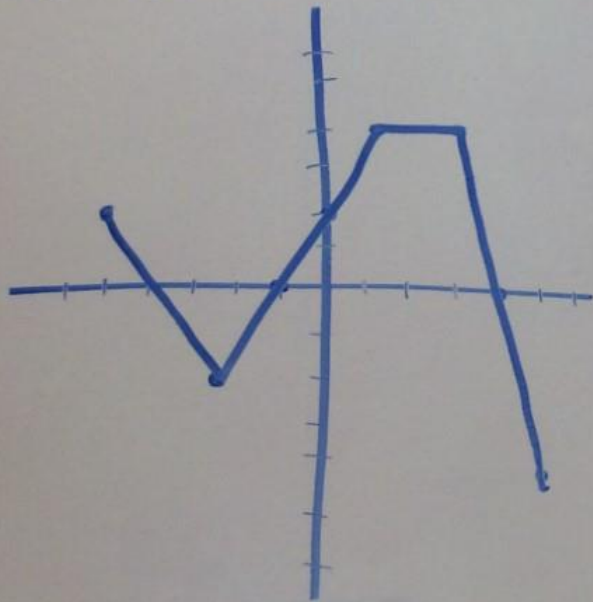
X	Y
-5	4
-3	-4
-1	-4
2	2
5	-2

RAX



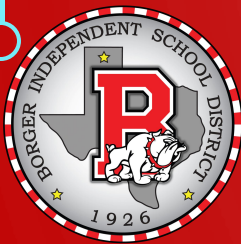
A)  $f(-x)$

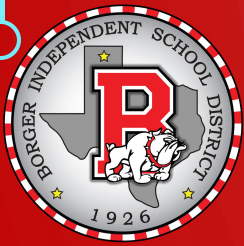
#8



x	y
5	-4
4	0
3	4
1	4
0	2
-1	0
-2	-2
-5	2

Reflected  
Yax



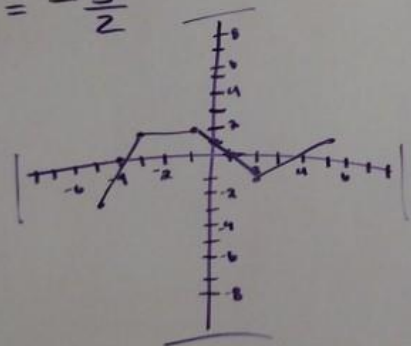


$$y = f(2x)$$

$\frac{x}{2}$	$y$
-2.5	-4
$\vdots$	$\vdots$
-0.5	4

HC2

$$2x = -5$$
$$x = -\frac{5}{2}$$



~~CV2~~  
VC2

D)  
#5

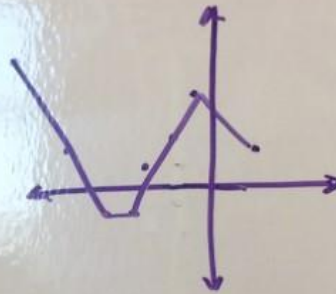
$$y = \frac{1}{2}f(x)$$
$$5(-4) = \frac{1}{2}a$$

$x$	$y$
-5	-2
-4	0
-3	2
-1	2
0	1
1	0
2	-1
5	1



$$-f(x+4)+3$$

x-4	-y+3
-9	7
-8	3
-7	-1
-5	-1
-4	1
-3	3
-2	5
1	1



RAX  
L4  
U3

$$y=f(x)-2$$

x	y-2
-5	-6
-4	-2
-3	2
⋮	⋮
⋮	⋮

Down 2