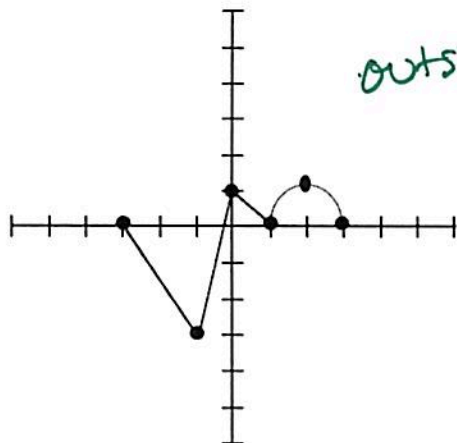


MOVE THE MONSTER

Pre-AP Algebra 2

Inside () - think opposite operation
 Name Key

Given: $h(x)$



outside () = "y"

Fill in the table:

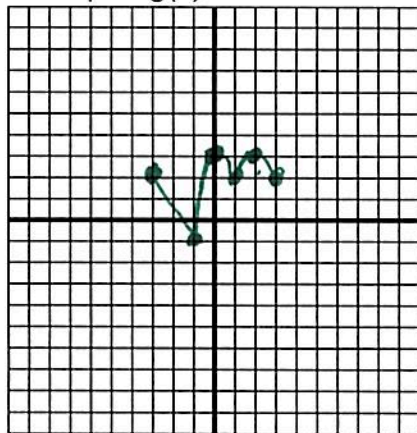
x	y
-3	0
-1	-3
0	1
1	0
2	1
3	0

Using the above table and graph, complete the following transformations by graphing the transformed function, filling out the table, giving an explanation of the transformation, and listing the domain and range.

1. $g(x) = h(x) + 2$

outside "y"

Graph: $g(x)$



New x	Original x	Original y	New y
-3	-3	0	2
-1	-1	-3	-1
0	0	1	3
1	1	0	2
2	2	1	3
3	3	0	2

+2

Explanation:

Write a verbal description of the transformation of $h(x)$.

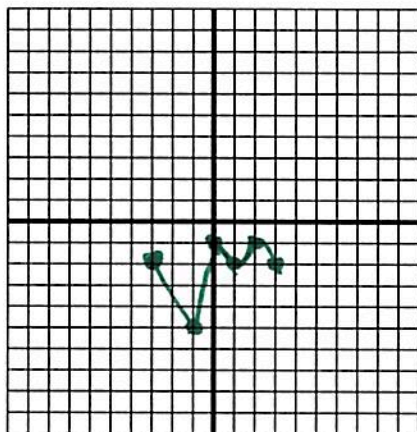
UP 2

Domain: $[-3, 3]$

Range: $[-1, 3]$

2. $g(x) = h(x) - 2$

Graph: $g(x)$



New x	Original x	Original y	New y
-3	-3	0	-2
-1	-1	-3	-5
0	0	1	-1
1	1	0	-2
2	2	1	-1
3	3	0	-2

-2

Write a verbal description of the transformation of $h(x)$.

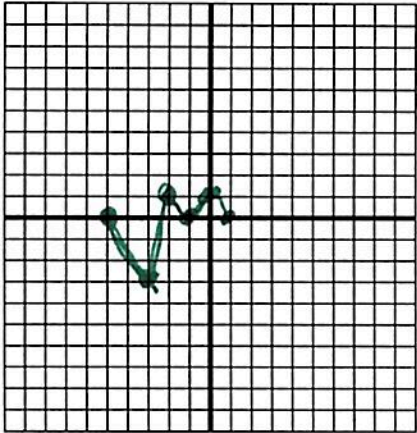
down 2

Domain: $[-3, 3]$

Range: $[-5, -1]$

3. $g(x) = h(x + 2)$ ↓ inside opposite

Graph: $g(x)$



-2

New x	Original x	Original y	New y
-5	-3	0	0
-3	-1	-3	-3
-2	0	1	1
-1	1	0	0
0	2	1	1
1	3	0	0

Write a verbal description of the transformation of $h(x)$.

left + 2

Domain: $[-5, 1]$

Range: $[-3, 1]$

4. $g(x) = h(x - 2)$ ↓ inside opposite

Graph: $g(x)$

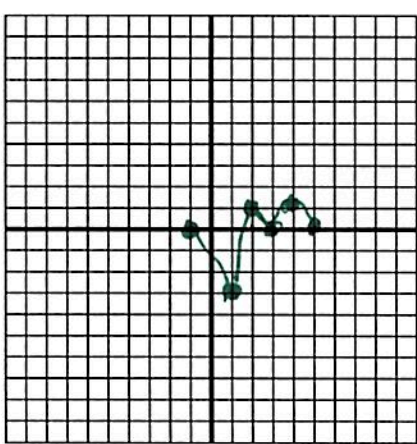


Table: $g(x)$

+2

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

Explanation:

Write a verbal description of the transformation of $h(x)$.

Right + 2

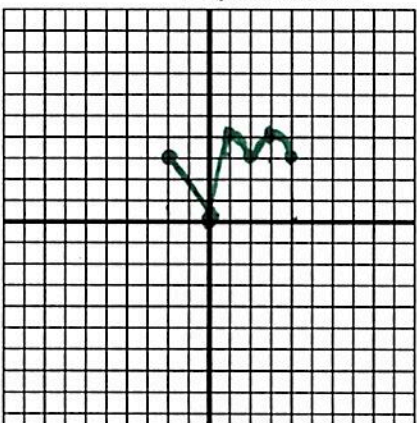
Domain: $[-1, 5]$

Range: $[-3, 1]$

5. $g(x) = h(x - 1) + 3$ in + out

Graph: $g(x)$

Explanation:



+1 +3

New x	Original x	Original y	New y
-2	-3	0	3
0	-1	-3	0
1	0	1	4
2	1	0	3
3	2	1	4
4	3	0	3

Write a verbal description of the transformation of $h(x)$.

Right 1
up 3

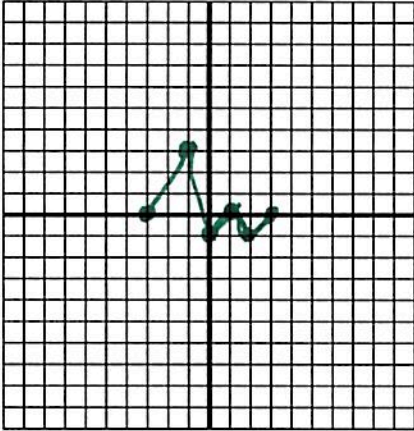
Domain: $[-2, 4]$

Range: $[0, 4]$



6. $g(x) = -h(x)$ *OUTSIDE*

Graph: $g(x)$



(-1)

New x	Original x	Original y	New y
-3	-3	0	0
-1	-1	-3	3
0	0	1	-1
1	1	0	0
2	2	1	-1
3	3	0	0

Write a verbal description of the transformation of $h(x)$.

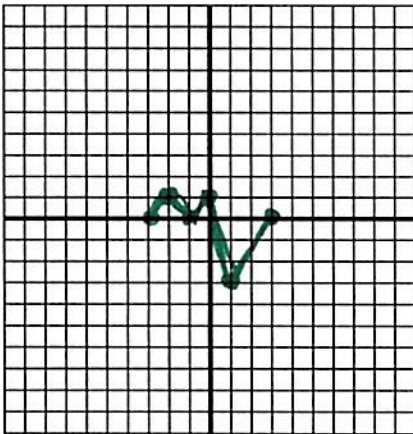
*Vertical flip
over x-axis*

Domain: $[-3, 3]$

Range: $[-1, 3]$

7. $g(x) = h(-x)$ *INSIDE*

Graph: $g(x)$



(-1)

New x	Original x	Original y	New y
3	-3	0	0
1	-1	-3	-3
0	0	1	1
-1	1	0	0
-2	2	1	1
-3	3	0	0

Write a verbal description of the transformation of $h(x)$.

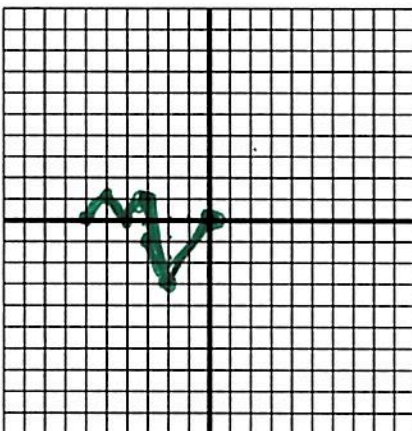
*horizontal
flip
over y-axis*

Domain: $[-3, 3]$

Range: $[-3, 1]$

8. $g(x) = h(-(x+3))$ *INSIDE*

Graph: $g(x)$



$-3 \neq -1$

New x	Original x	Original y	New y
0 } 3	-3	0	0
-2 } 1	-1	-3	-3
-3 } 0	0	1	1
-4 } -1	1	0	0
-5 } -2	2	1	1
-6 } -3	3	0	0

Write a verbal description of the transformation of $h(x)$.

*Horizontal flip
Left 3*

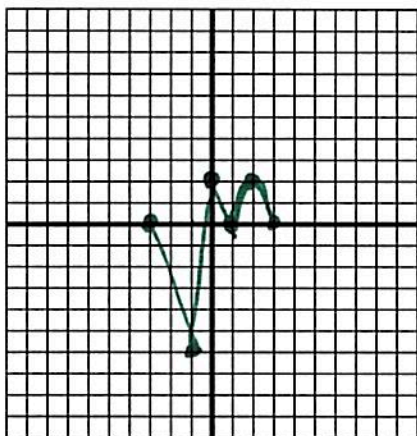
Domain: $[-6, 0]$

Range: $[-3, 1]$



9. $g(x) = 2h(x)$ *outside*

Graph: $g(x)$



New x	Original x	Original y	New y
-3	-3	0	0
-1	-1	-3	-6
0	0	1	2
1	1	0	0
2	2	1	2
3	3	0	0

Write a verbal description of the transformation of $h(x)$.

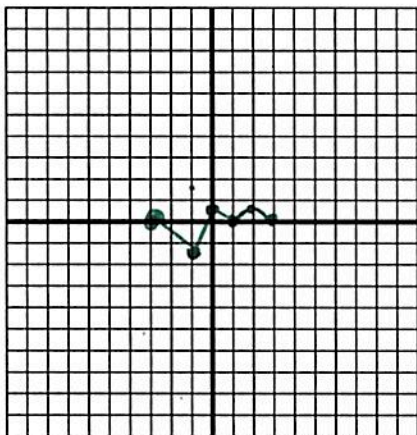
Vertical Stretch

Domain: $[-3, 3]$

Range: $[-6, 2]$

10. $g(x) = \frac{1}{2}h(x)$ *outside*

Graph: $g(x)$



New x	Original x	Original y	New y
-3	-3	0	0
-1	-1	-3	-3/2
0	0	1	1/2
1	1	0	0
2	2	1	1/2
3	3	0	0

Write a verbal description of the transformation of $h(x)$.

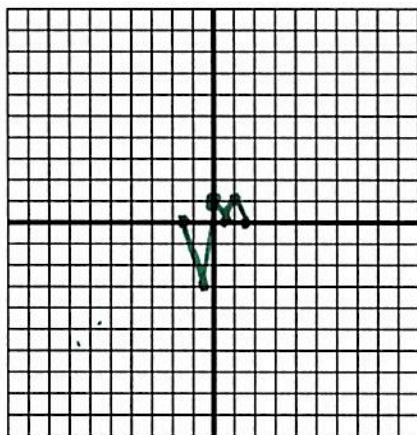
Vertical Compression

Domain: $[-3, 3]$

Range: $[-3/2, 1/2]$

11. $g(x) = h(2x)$ *inside opposite operation*

Graph: $g(x)$



New x	Original x	Original y	New y
-3/2	-3	0	0
-1/2	-1	-3	-3
0	0	1	1
1/2	1	0	0
1	2	1	1
3/2	3	0	0

Write a verbal description of the transformation of $h(x)$.

Horizontal Compression

Domain: $[-3/2, 3/2]$

Range: $[-3, 1]$

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

12) $g(x) = h\left(\frac{1}{2}x\right)$ *Inside opposite operation*
 Graph: $g(x)$



~~2~~

New x	Original x	Original y	New y
-6	-3	0	0
-2	-1	-3	-3
0	0	1	1
2	1	0	0
4	2	1	1
6	3	0	0

Write a verbal description of the transformation of $h(x)$.

horizontal stretch

Domain: $[-6, 6]$

Range: $[-3, 1]$

Verbal Description Word Bank

- Vertical shift up
- Vertical shift down
- Vertical stretch
- Vertical compression
- Vertical reflection (over x-axis)
- Horizontal shift left
- Horizontal shift right
- Horizontal stretch
- Horizontal compression
- Horizontal reflection (over y-axis)

Handwritten notes at the top of the page, possibly including a date and some illegible text.



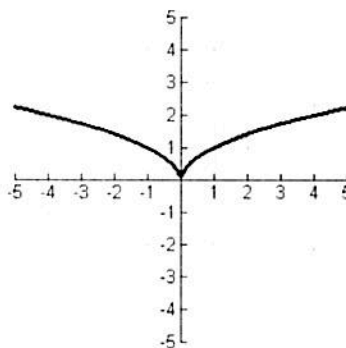
Vertical handwritten text on the left side of the page, possibly a list or notes.

Vertical handwritten text in the middle of the page.



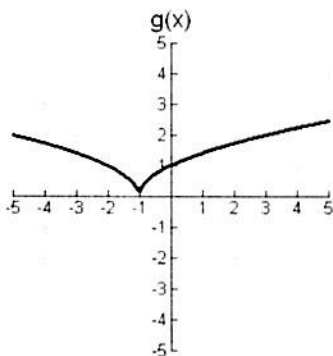
Elaborate:

Given the function $f(x)$ as shown in the graph:
Critical Point:



Describe the transformation from $f(x)$ to $g(x)$ and write the rule for the function $g(x)$ as a transformation of $f(x)$.

1.



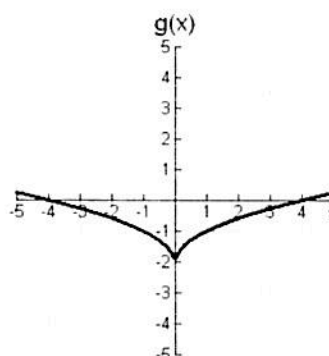
Trans. (verbal): left 1

Trans. (function notation): $g(x) = f(x+1)$

Domain: \mathbb{R}

Range: $y \geq 0$

2.



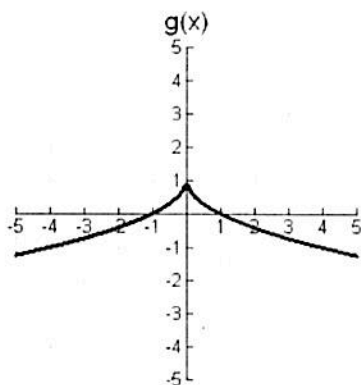
Trans. (verbal): Down 2

Trans. (function notation): $g(x) = f(x) - 2$

Domain: \mathbb{R}

Range: $y \geq -2$

3.



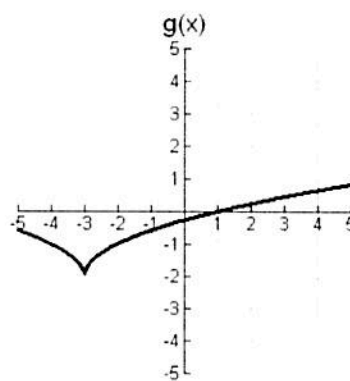
Trans. (verbal): flip vertical; up 1

Trans. (function notation): $g(x) = -f(x) + 1$

Domain: \mathbb{R}

Range: $y \leq 1$

4.



Trans. (verbal): left 3; down 2

Trans. (function notation): $g(x) = f(x+3) - 2$

Domain: \mathbb{R}

Range: $y \leq -2$

