State the domain and range of the following relation. Is the relation a function?

{(-3, 5), (-2, 5), (-1, 5), (0, 5), (1, 5), (2, 5)}

Domain {-3, -2, -1, 0, 1, 2}

Range {5} function

State the domain and range of the following relation. Is the relation a function?

{(2, -3), (4, 6), (3, -1), (6, 6), (2, 3)}

Domain {2, 4, 3, 6}

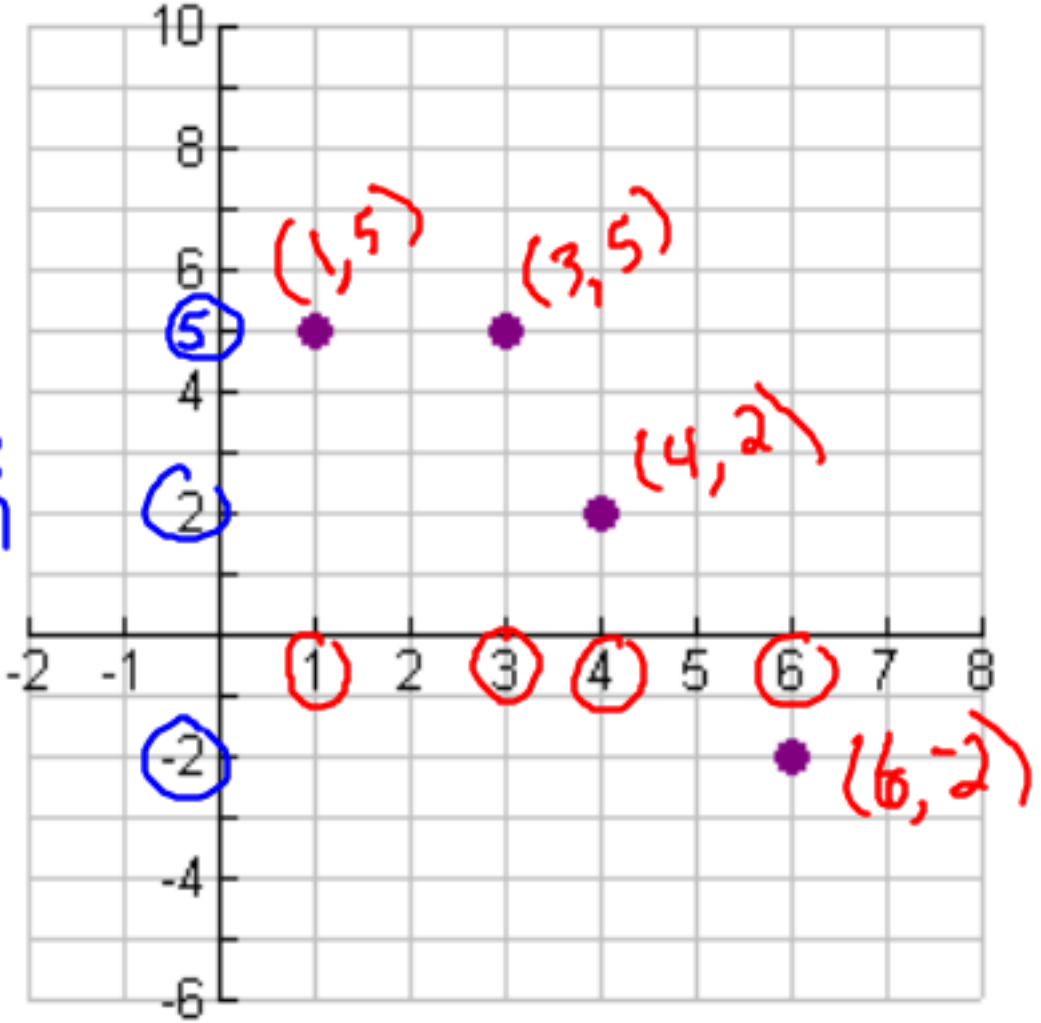
NOT A function

Range {-3, 6, -1, 3}

Domain
{1, 3, 4, 6}

Range
{5, 2, -2}

function?
yes



Example 1

Domain

all Real #

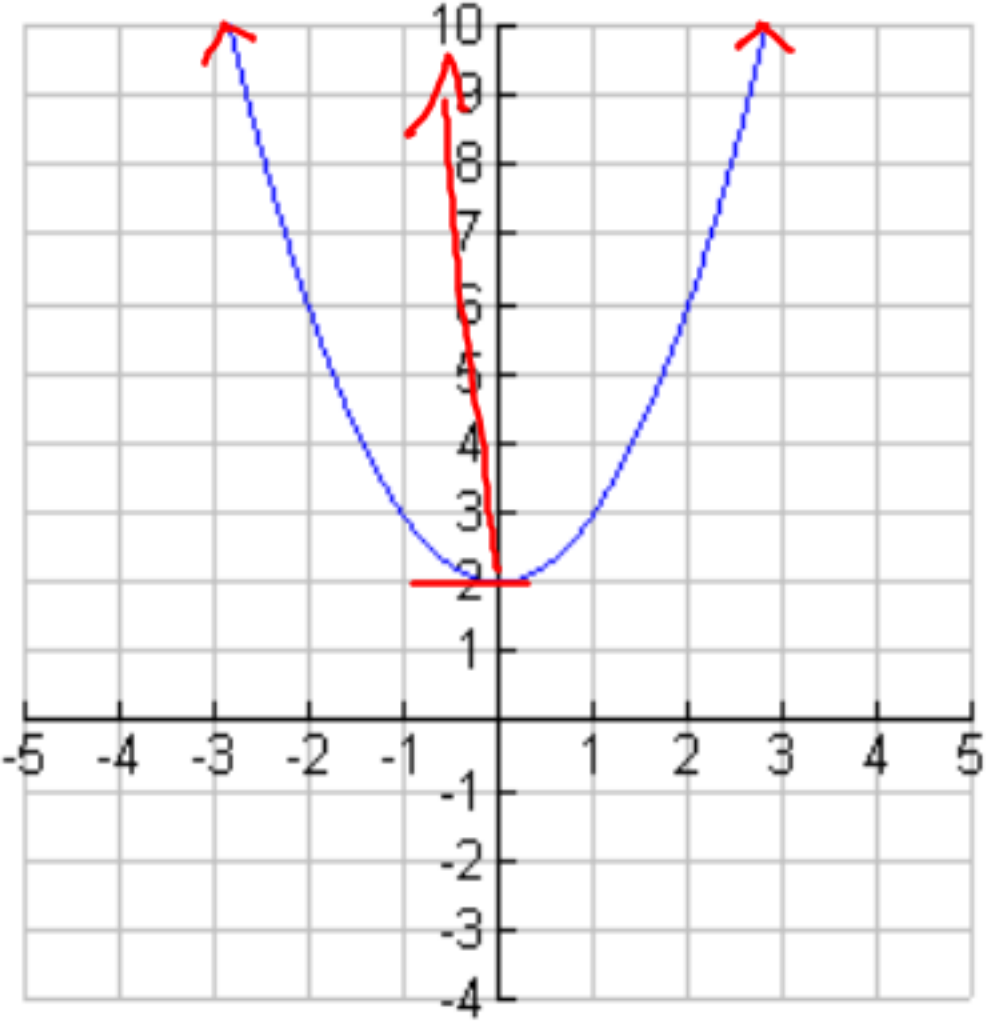
$\mathbb{R}$

Range

$y \geq 2$

function?

yes



Example 2

Domain

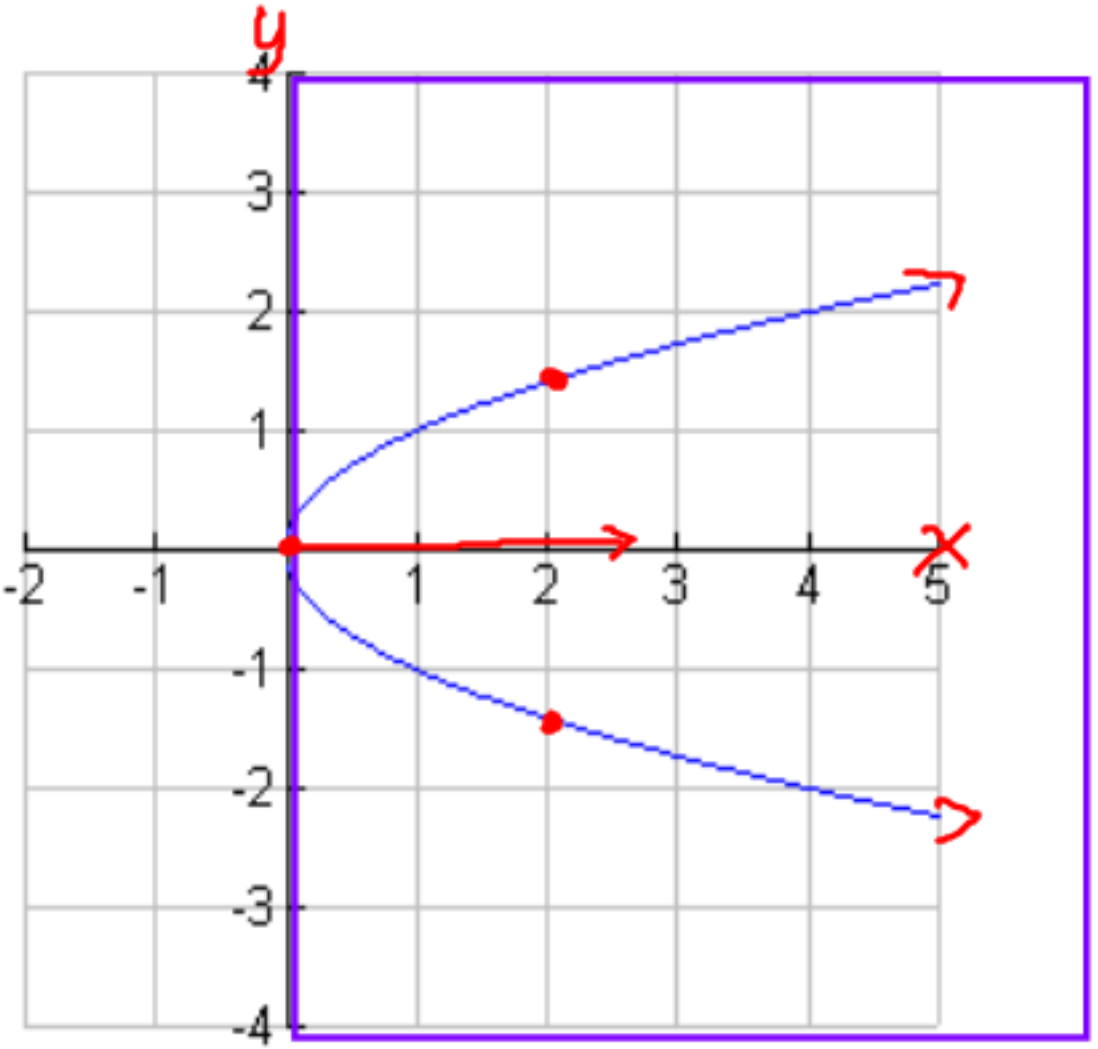
$x \geq 0$

Range

all Real #

function?

NO



Domain

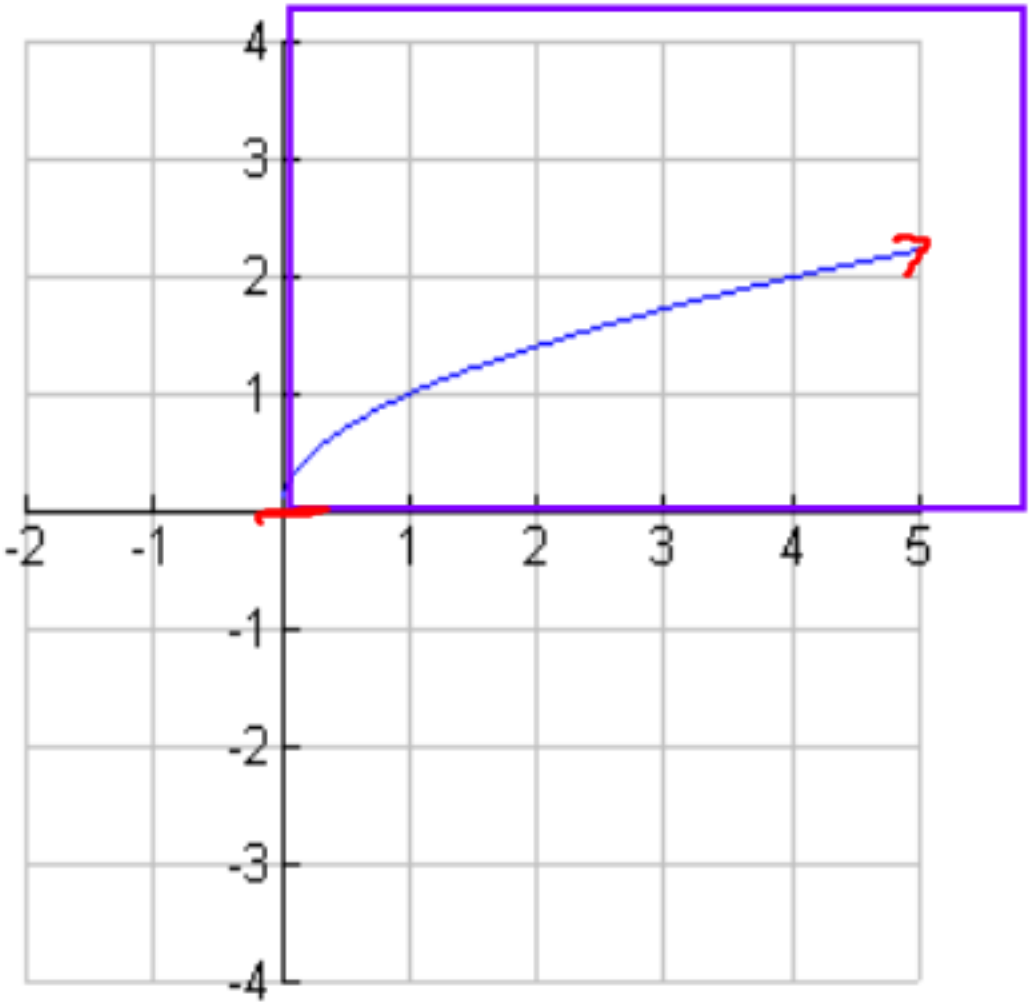
$x \geq 0$

Range

$y \geq 0$

function?

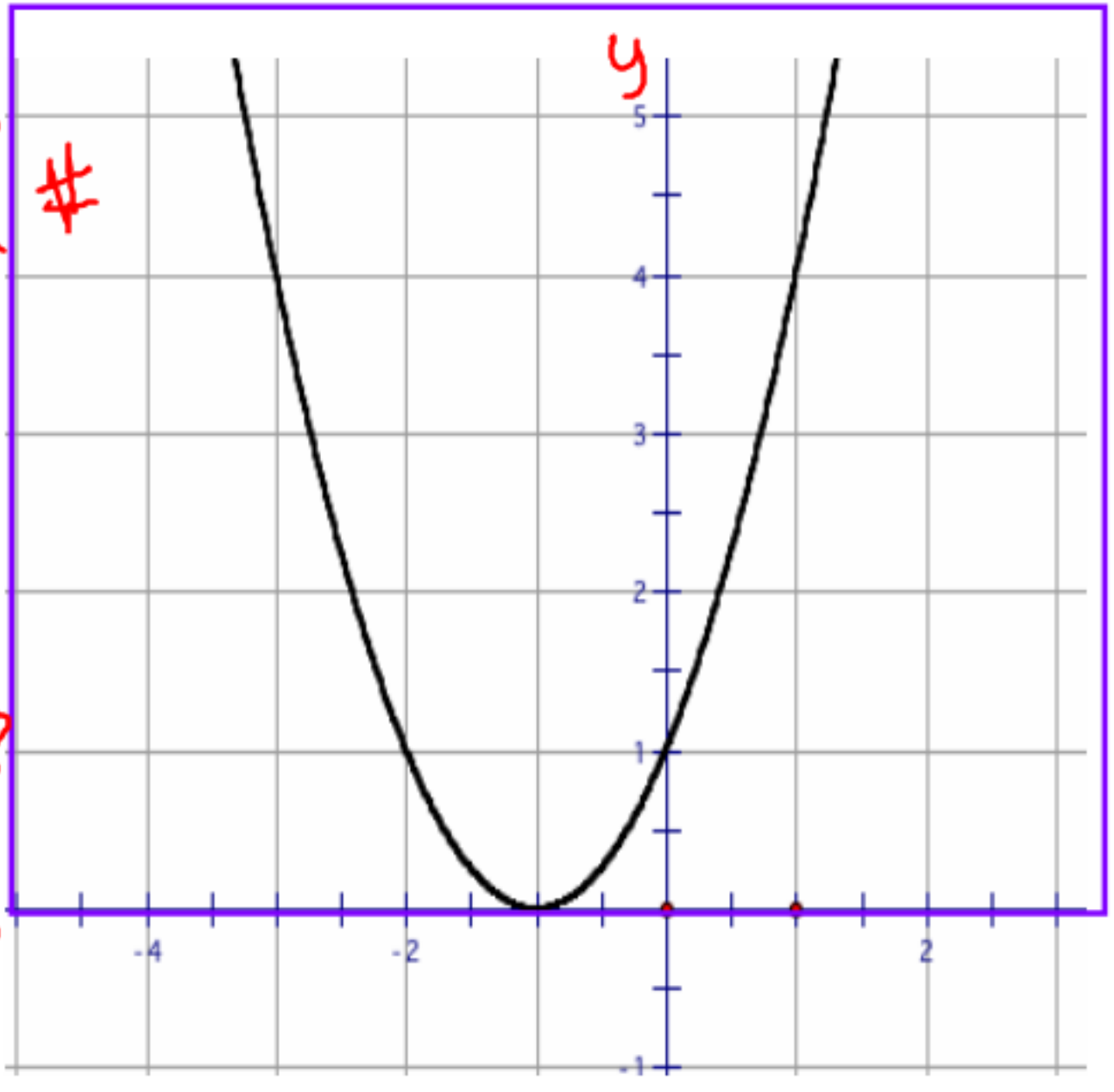
yes



Domain
all Real #

Range:
$y \geq 0$

function?
yes



Domain

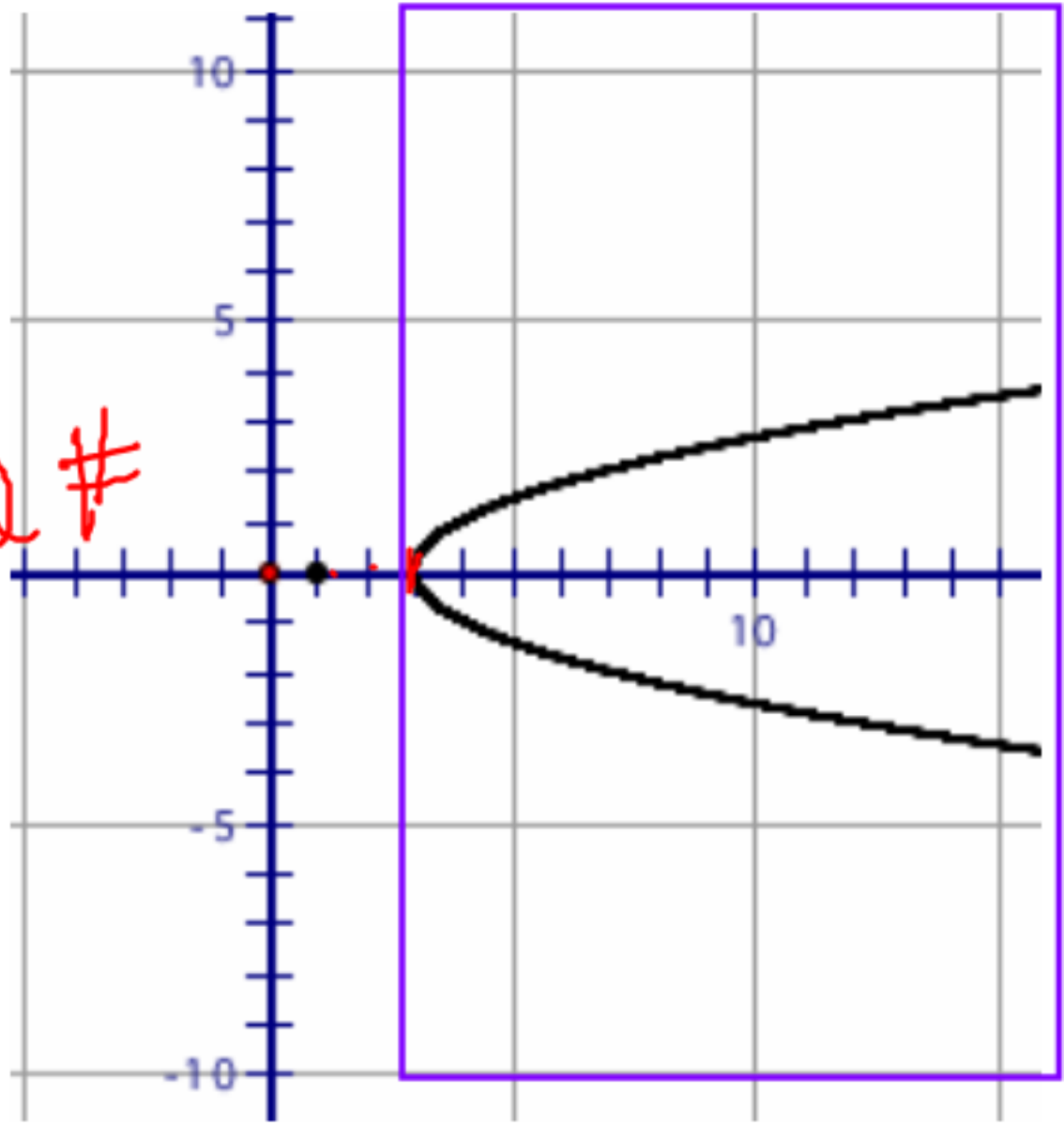
$x \geq 3$

Range

all Real #

function?

NO



Domain $[-2, 5]$

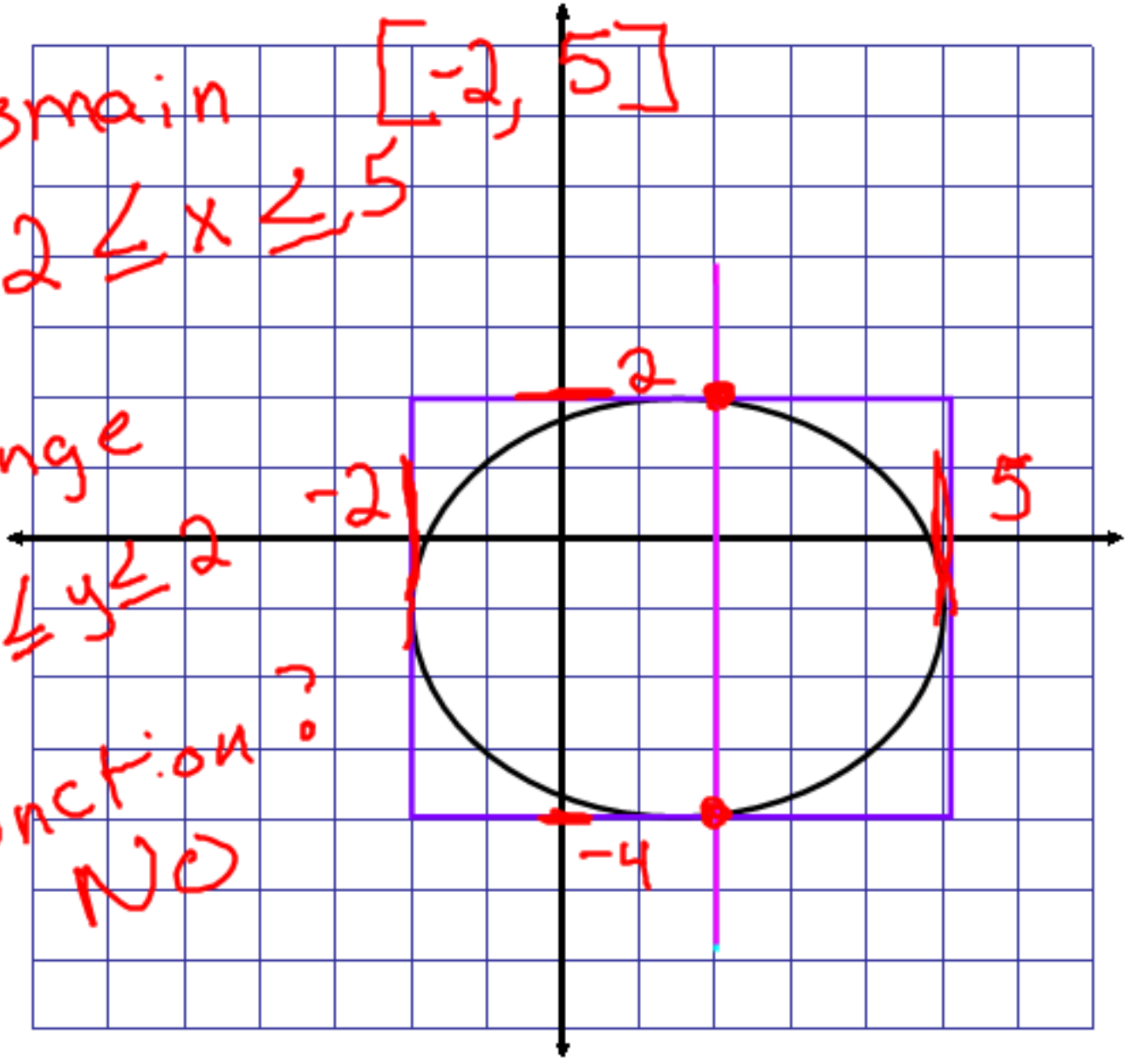
$-2 \leq x \leq 5$

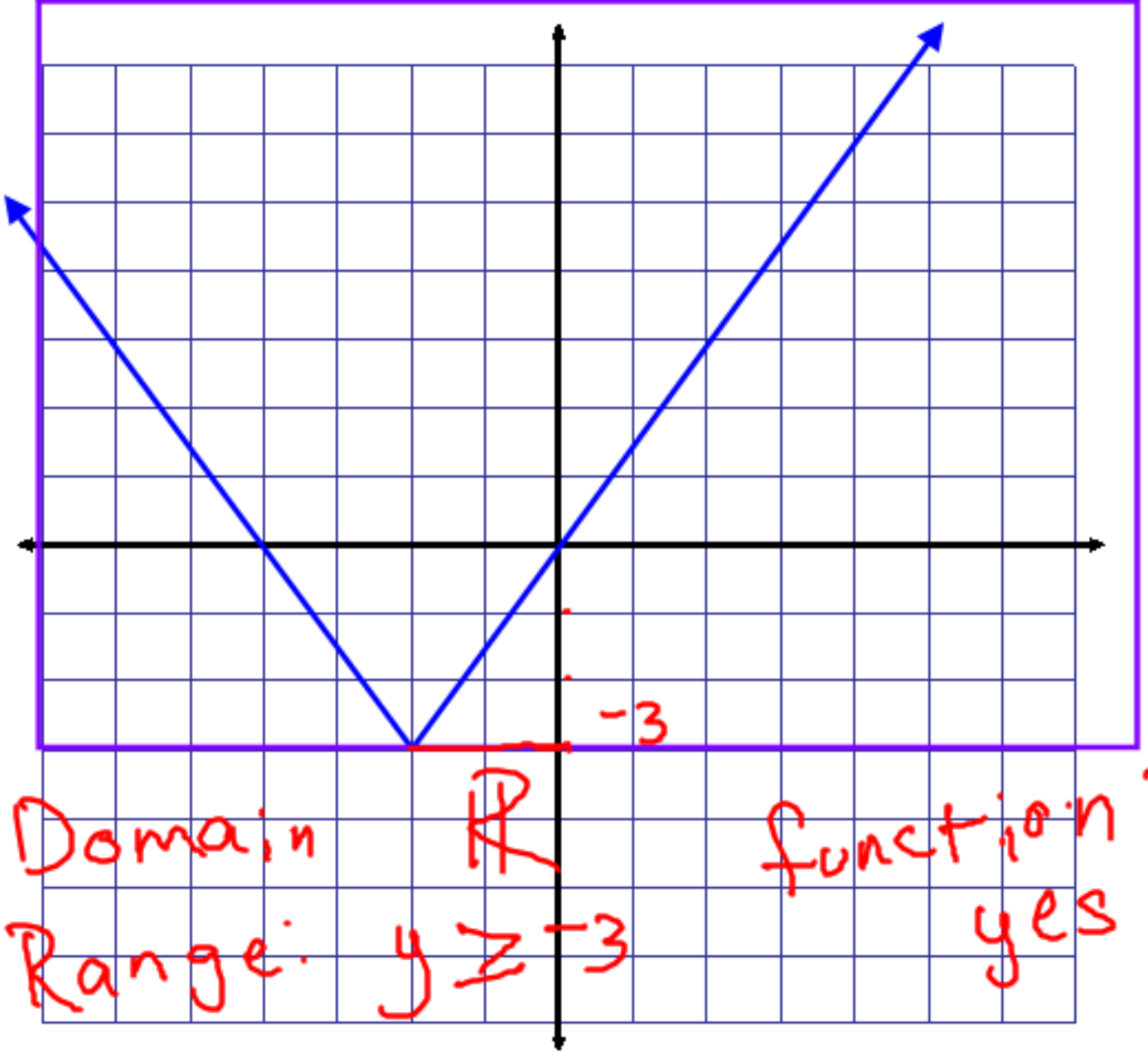
Range

$-4 \leq y \leq 2$

function?

NO



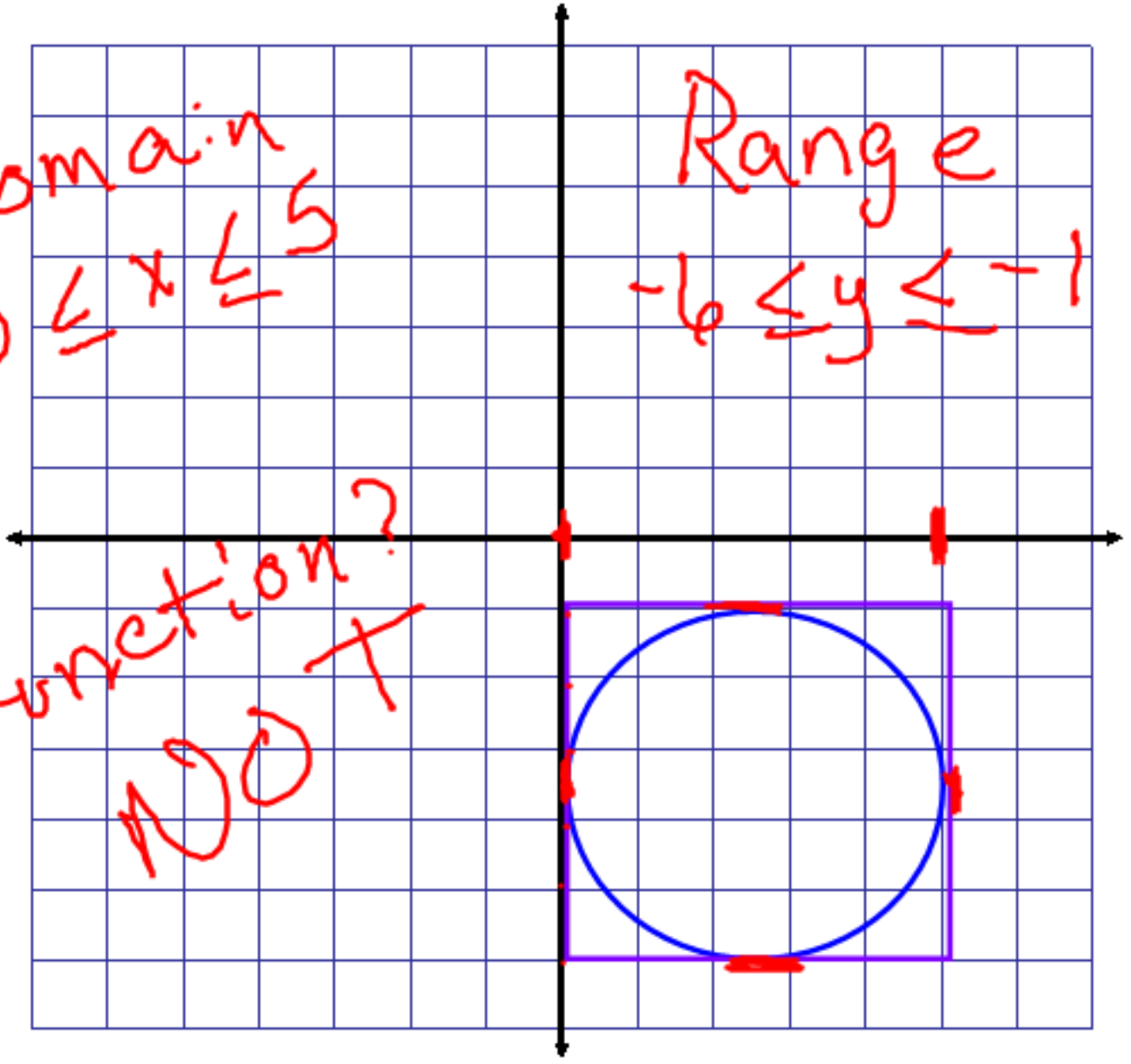


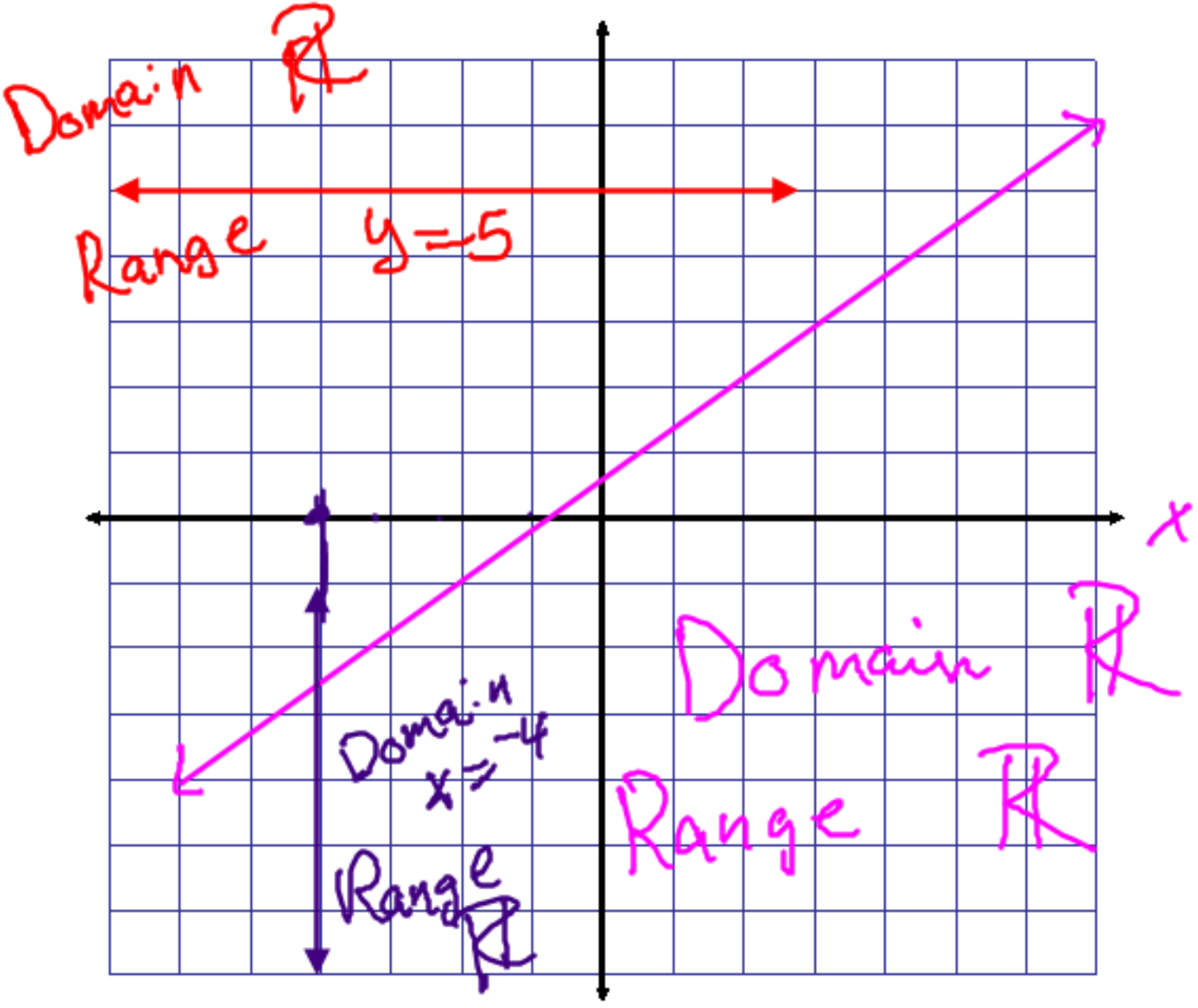
Domain $\mathbb{R}$

Range: $y \geq -3$

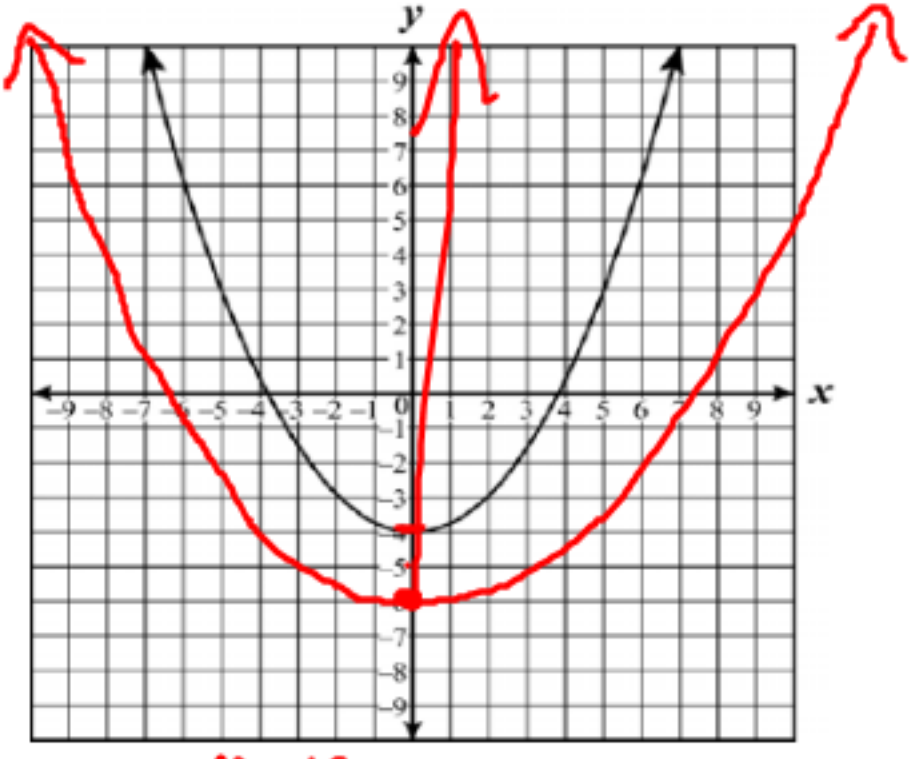
function?

yes


Domain
$0 \le x \le 5$
Range
$-6 \le y \le -1$
function?
NOT


Domain ℝ
Range y=-5
x
Domain ℝ
Range ℝ
Domain x=-4
Range ℝ

The vertex of the quadratic function shown on the grid below is at (0, –4).



move

If the graph of this function is translated 2 units down, which of the following best describes the range of the resulting graph?

A All numbers greater than or equal to –6
B All numbers less than or equal to –6
C All numbers greater than or equal to –2
D All real numbers

What is the range of the function

$$\overset{y}{\cancel{f(x)}} = \frac{1}{2}x^2 + 4$$

when the domain is {–2, 0, 4}?

d x	r y
-2	6
0	4
4	12

A {2, 4, 10}

B {3, 4, 6}

C {4, 6, 12}

D {4, 6, 8}

2 **In which of the following sets of points is y a function of x?**

F $\{(1, 4), (1, 5), (2, 6), (3, 5)\}$

G $\{(1, 4), (2, 3), (4, 4), (4, 1)\}$

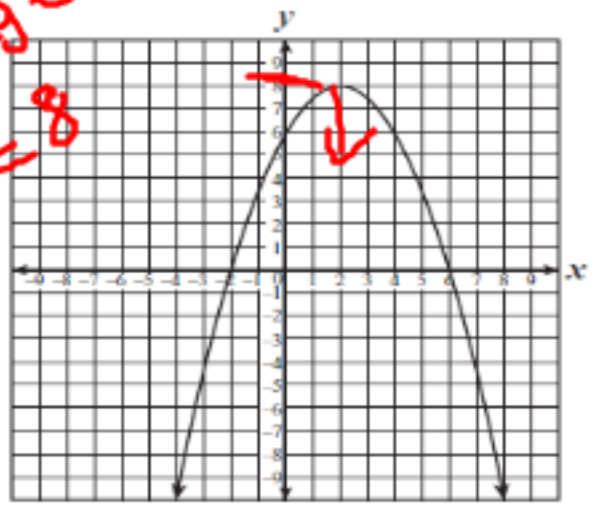
H $\{(2, 2), (3, 4), (4, 4), (5, 4)\}$

J $\{(2, 2), (4, 6), (5, 3), (5, 1)\}$

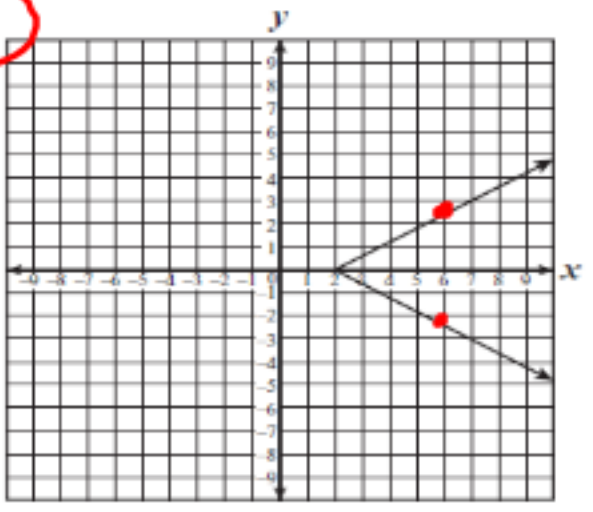
22 Which of the following graphs does NOT represent a function of x?

Range
$y \leq 8$

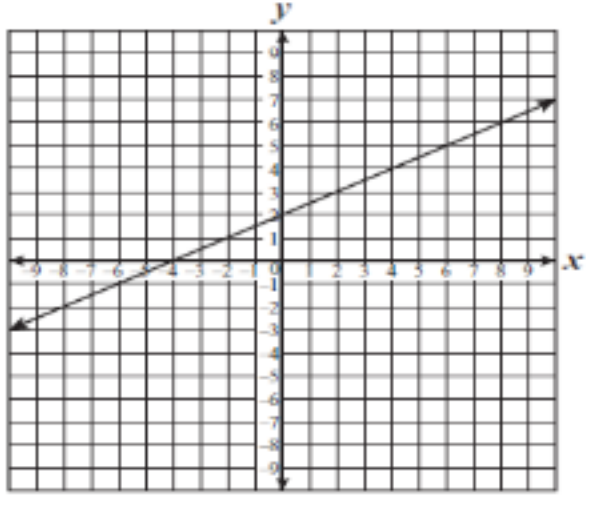
F



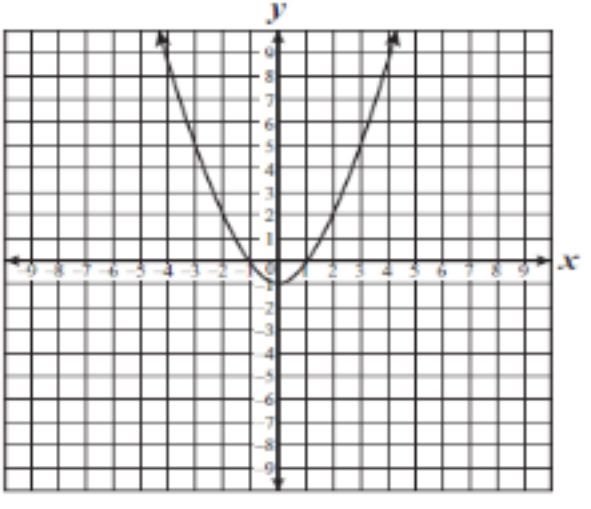
H



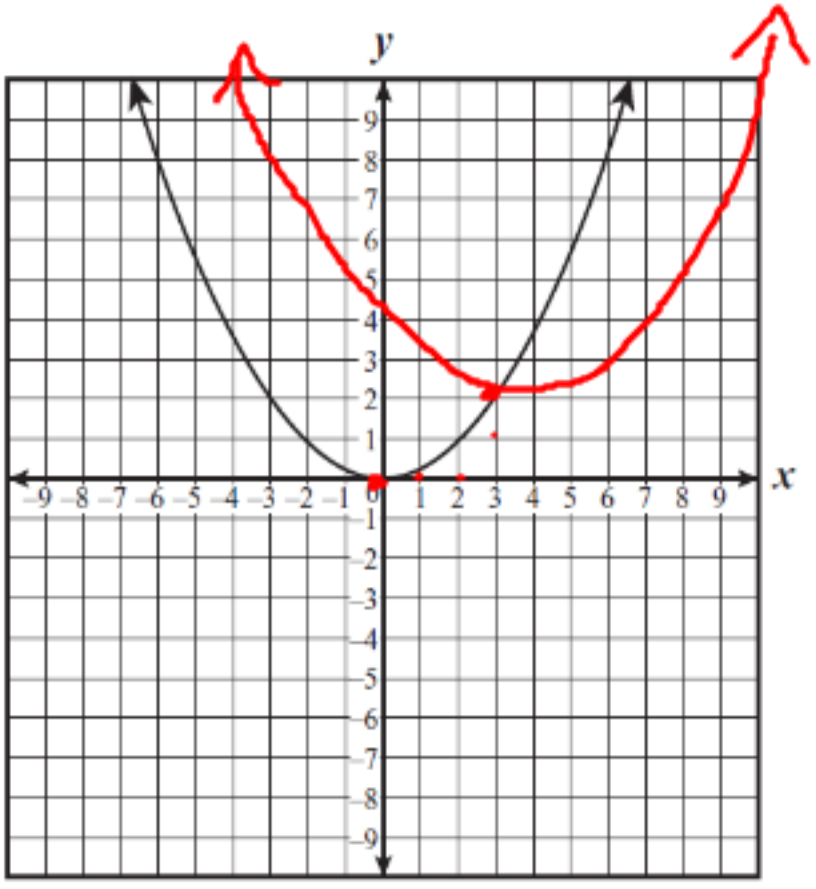
G



J



52 **The vertex of the quadratic function shown on the grid below is at the origin.**



move

If the graph of this function is translated 3 units to the right and 2 units up, which of the following best describes the domain of the resulting graph?

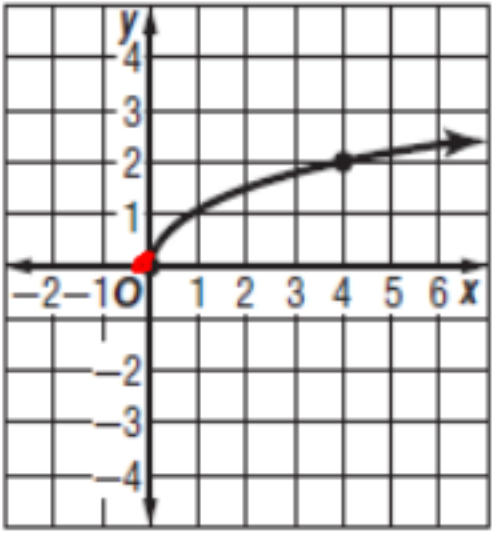
F The domain of the resulting graph is all real numbers.

G The domain of the resulting graph is all numbers greater than or equal to -2.

H The domain of the resulting graph is all numbers from -4 to 10.

J The domain of the resulting graph is all numbers greater than or equal to 2.

1 What is the domain of the function shown below?



A All real numbers such that $x < 0$

B All real numbers such that $x \geq 0$

C All real numbers

D All real numbers except $x = 0$

2 **Which set or sets represents functions?**

$R = \{(1, -3), (2, -3), (4, 2), (5, 2)\}$

$S = \{(2, 5), (6, 5), (-10, 5), (-14, 5)\}$

$T = \{(5, -2), (-2, -2), (-1, 1), (6, 1)\}$

A Set R only

B Set S only

C Sets R and S only

D Sets R, S, and T

3 **Which of the following represents a function?**

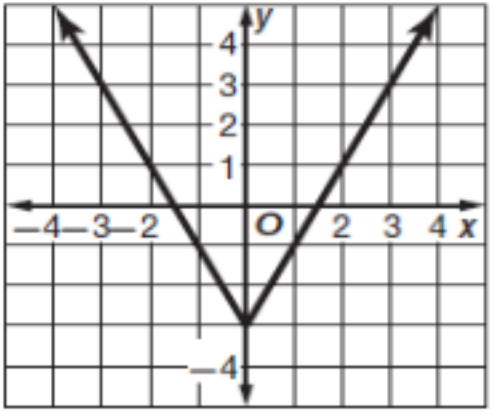
A $\{(-2, -2), (-2, -4), (-2, 1), (2, 1)\}$

B $\{(2, -2), (-2, -2), (-1, 1), (1, 1)\}$

C $\{(1, -2), (-1, -3), (-1, 4), (1, 0)\}$

D $\{(3, -2), (-3, -2), (-2, 0), (3, 5)\}$

4 **What is the domain and range of the function graphed below?**



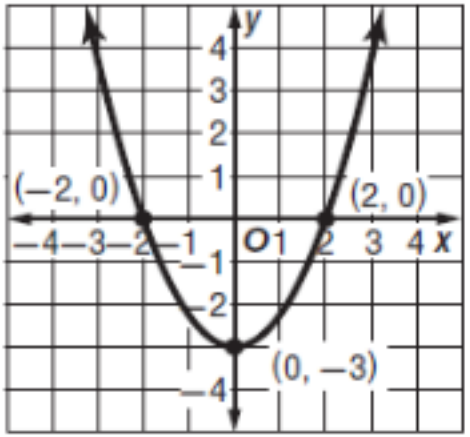
A domain: All real numbers; range: All real numbers $y \geq -3$

B domain: All real numbers $x \geq 0$; range: All real numbers $y \geq 3$

C domain: All real numbers $x \geq 0$; range: All real numbers $y \geq 0$

D domain: All real numbers except $x = 0$; range: All real numbers

5 **What is the domain of the function shown below?**



A All real numbers such that $x > 0$

B All real numbers

C All real numbers such that $x \geq 0$

D All real numbers except $x \geq -3$