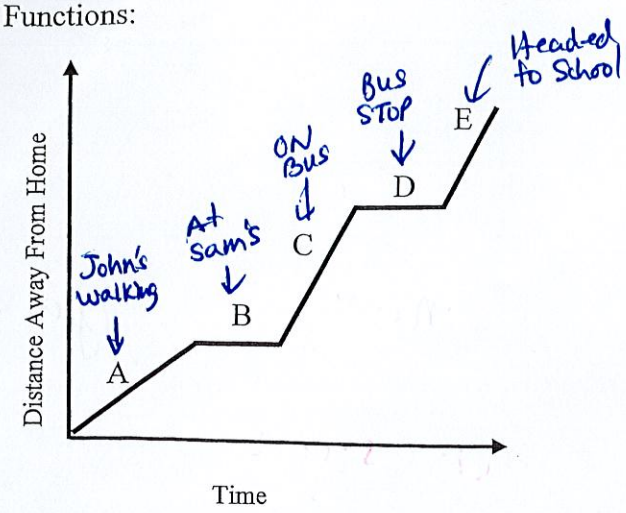
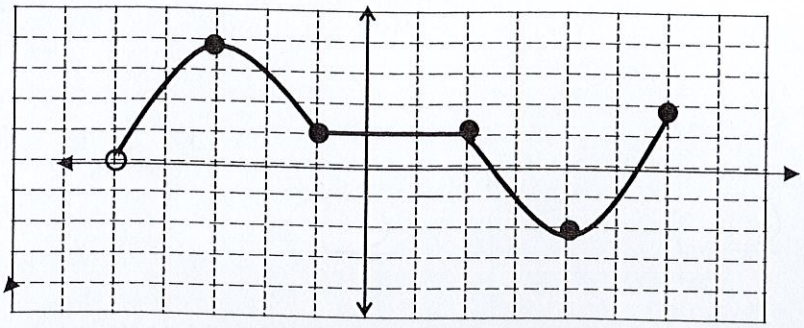
Functions:



The graph shows John's trip to school. He walks to Sam's house and, together, they ride a bus to school. The bus stops once on the way to school. Describes how each section A – E of the graph relates to the story.

Let $f(x)$ be the function graphed below.



Increasing $-5<x<-3$ or $4<x<6$

Decreasing $-3<x<-1$ or $2<x<4$

Constant $-1<x<2$

Find $(f(-3)) =$ 4

Find $(f(2)) =$ 1

$f(4) =$ -2 $f(-1) =$ 1

Vocabulary

A relation can be represented by a set of ordered pairs
The domain is the set of all x values
The range is the set of all y values
The independent variable is the same as the x -values and the input (domain)
The dependent variable is the same as the y -values and the output (range)
A relation is a function if for each x -value there is exactly one y -value.
Each value in the domain of a function is called an input, and the corresponding value for the range is called an output.

1. { (1, -3), (3, -3), (0, 5), (-2, 1), (-4, 3) }

Inverse { (-3, 1)(-3, 3) (5, 0) (1, -2)(3, -4)

Domain: (x-values) { 1, 3, 0, -2, -4 }

Range: (y-values) { -3, 5, 1, 3 }

Is this a function? yes

2.

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

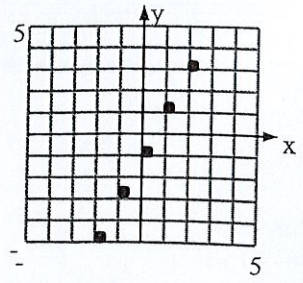
Domain: (x-values) { -4, 1, -2 }

Range: (y-values) { -3, 2, 5, 0 }

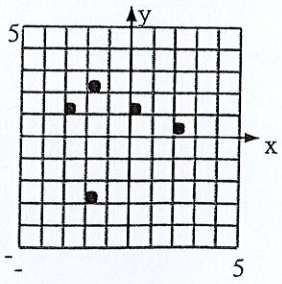
Is this a function? NO

When given a graph or picture of a relation and asked if it is a function the Vertical Line Test (Pencil) is used. This test helps you to know a relation is a function by looking to see if any vertical line drawn does not intersect the graph at more than one point.

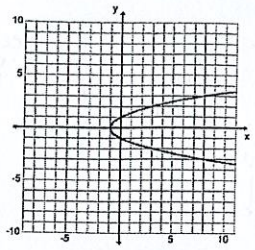
Line Test.

6. 

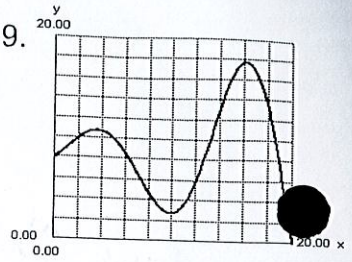
yes

7. 

no

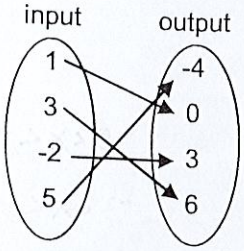
8. 

no

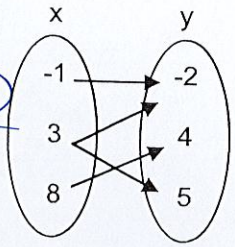
9. 

yes

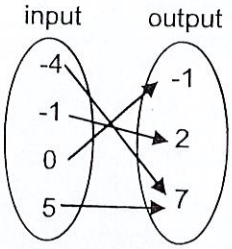
Examples: Determine whether the mapping diagram or table represents a function and circle yes or no.

10. 

function: yes or no

11. 

function: yes or no

12. 

function: yes or no

13.

x	y
-6	1
3	8
2	3
7	-2

function: yes or no

14.

input	output
-2	3
4	5
8	9
4	2

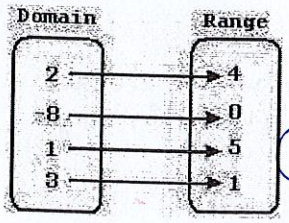
function: yes or no

15.

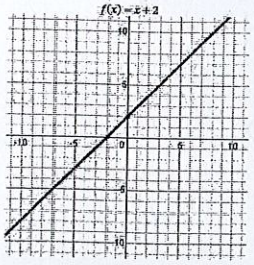
x	y
1	3
-2	-4
3	4
-5	3

function: yes or no

Examples: Determine whether the representations are one to one functions.

16. 

1-1: Yes or No

17. 

1-1: Yes or No

18.

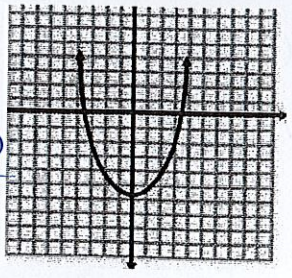
x	y
1	5
2	8
3	11
4	14

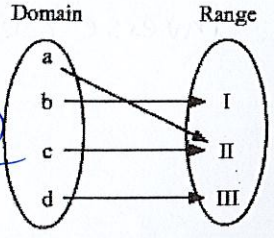
1-1: Yes or No

19.

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

1-1: Yes or No

20. 
1-1: Yes or No

21. 

1-1: Yes or No

22. Make a set of ordered pairs that represents a one to one function: