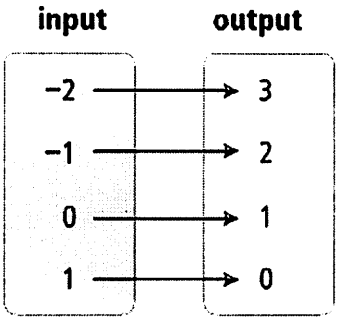
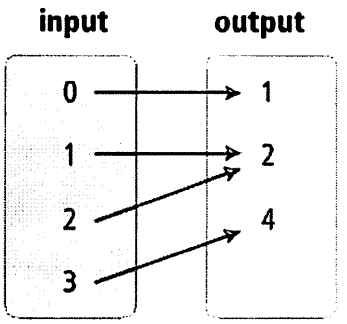
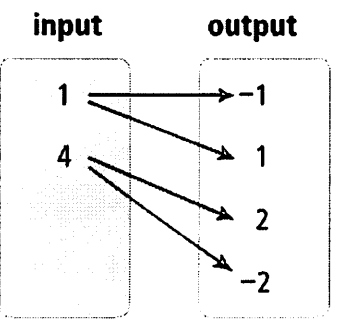
Relations and Functions

Relation –

Determine the ordered pairs from the mapping diagram.



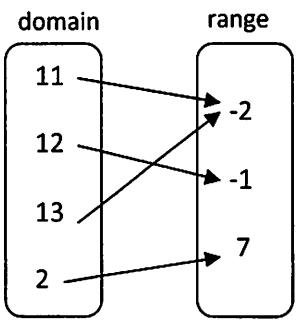




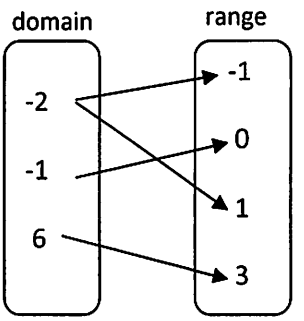
Remember, a function assigns exactly one output value for each input value. Ano

Determine whether each relation is a function.

1. {(11, -2), (12, -1), (13, -2), (20, 7)}



2. {(-2, -1), (-1, 0), (6, 3), (-2, 1)}



Use a mapping diagram to determine whether each relation is a function

3. {(3, -2), (8, 1), (9, 2), (3, 3), (-4, 0)}

4. {(6.5, 0), (7, -1), (6, 2), (2, 6), (5, -1)}

You can also be given data in a table. Determine if the relation given in each table represents a function.

a.

input	output
1	3
1	2
2	−4
3	2

b.

input	output
−3	−5
−2	−5
−1	−5
0	−5

c.

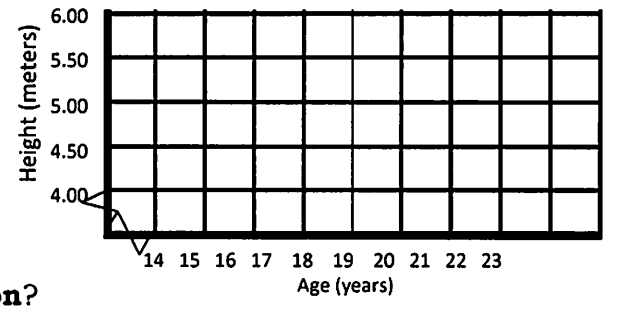
input	output
0	12
1	14
2	16
3	18

The (age, height) ordered pairs below form a relation.

Giraffes

Age (years)	18	20	21	14	18
Height (meters)	4.25	4.40	5.25	4.00	4.85

List the set of ordered pairs in this relation and plot the set of points.



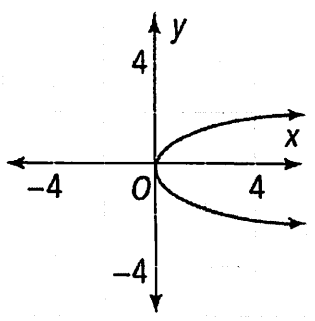
How do we determine if the above **relation** is a **function**?

You can tell whether a relation is a function by analyzing the _____ of the relation using the _____ _____ _____.

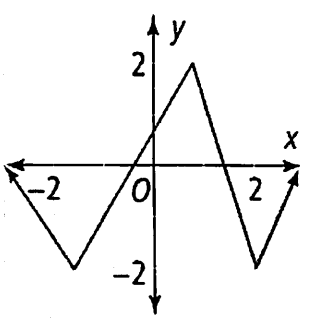
If any _____ line passes through more than _____ point of the graph, then the relation is _____ _____ _____

Use the Vertical Line Test to determine which graphs represent functions

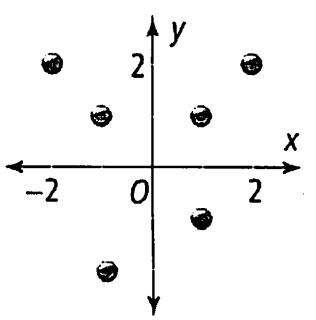
I.



II.



III.

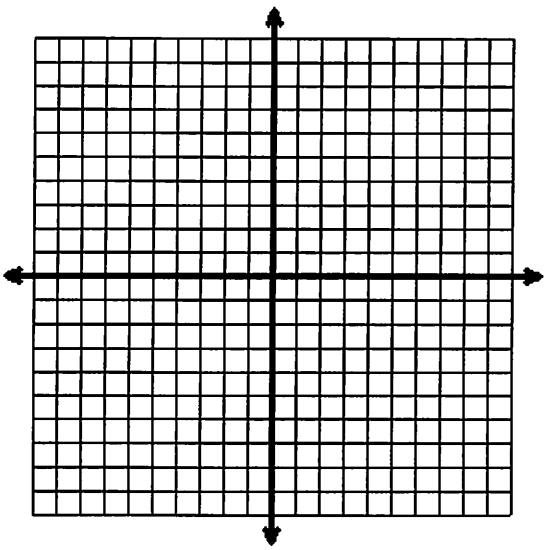


Use the vertical line test to determine whether each relation is a function.

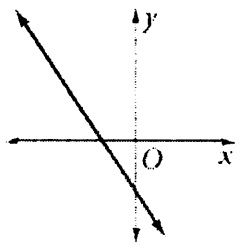
1. {(2, 5), (3, -5), (4, 5), (5, -5)}

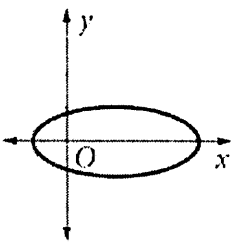
2. { (5, 0), (0, 5), (5, 1), (1, 5)}

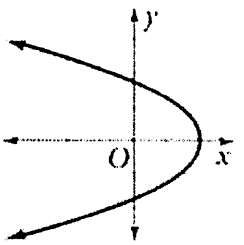
3. {(-2, 9), (3, 9), (-0.5, 9), (4, 9)}

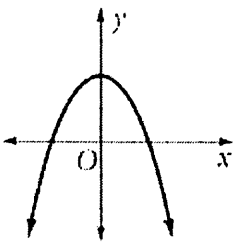


Use the vertical line test to determine whether each graph is the graph of a function.





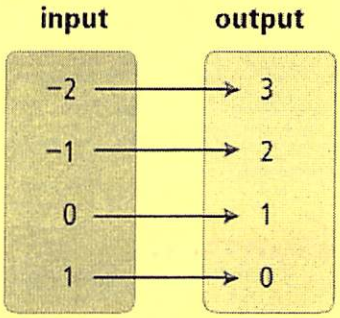




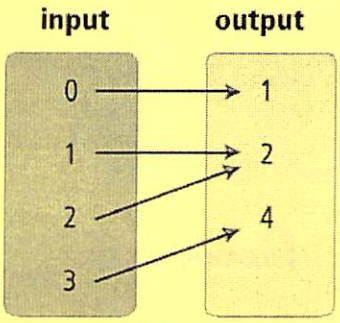
Relations and Functions

Relation – A set of ordered pairs
Coordinates

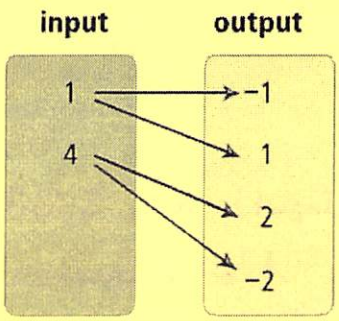
Determine the ordered pairs from the mapping diagram.



(-2, 3) (1, 0)
(-1, 2)
(0, 1)



(0, 1) (1, 2)
(2, 2) (3, 4)

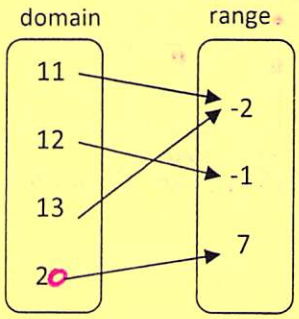


(1, -1) (4, 2)
(1, 1) (4, -2)

Remember, a function assigns exactly one output value for each input value. Ano

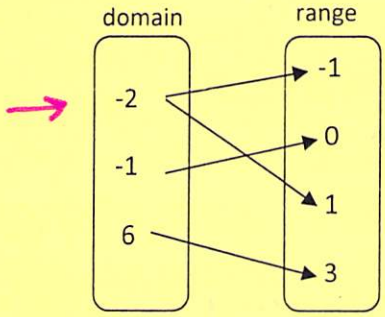
Determine whether each relation is a function.

1. {(11, -2), (12, -1), (13, -2), (20, 7)}



Yes

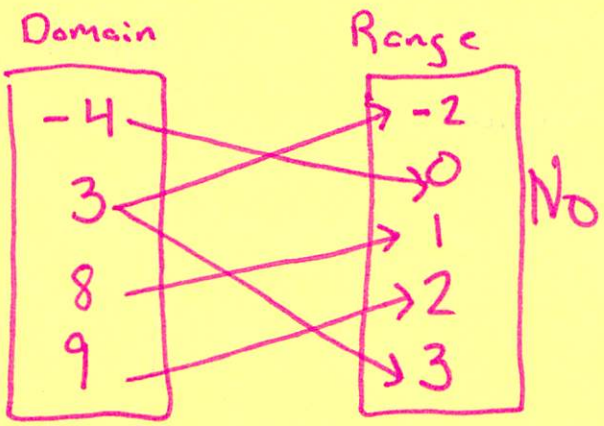
2. {(-2, -1), (-1, 0), (6, 3), (-2, 1)}



No

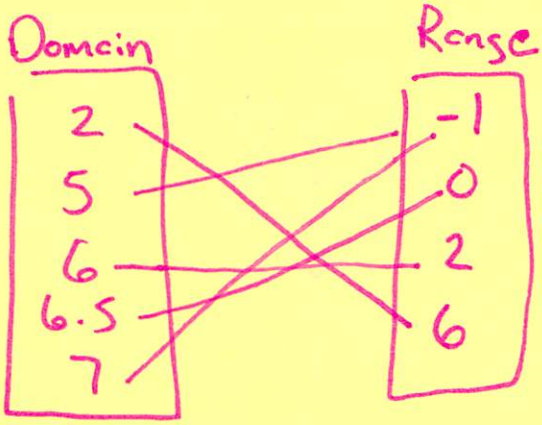
Use a mapping diagram to determine whether each relation is a function

3. {(3, -2), (8, 1), (9, 2), (3, 3), (-4, 0)}



No

4. {(6.5, 0), (7, -1), (6, 2), (2, 6), (5, -1)}



Yes

You can also be given data in a table. Determine if the relation given in each table represents a function.

a.

input	output
1	3
1	2
2	−4
3	2

1 (Input) has 2 Outputs

No Function

b.

input	output
−3	−5
−2	−5
−1	−5
0	−5

Function

c.

input	output
0	12
1	14
2	16
3	18

Function

The (age, height) ordered pairs below form a relation.

Giraffes

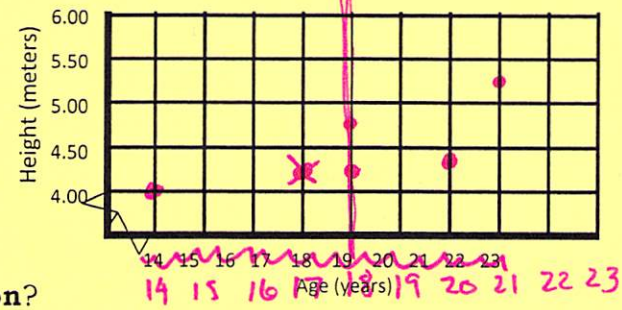
Age (years)	18	20	21	14	18
Height (meters)	4.25	4.40	5.25	4.00	4.85

List the set of ordered pairs in this relation and plot the set of points.

(14, 4)
(18, 4.25)
(18, 4.85)
(20, 4.4)
(21, 5.25)

No Function

Not a function



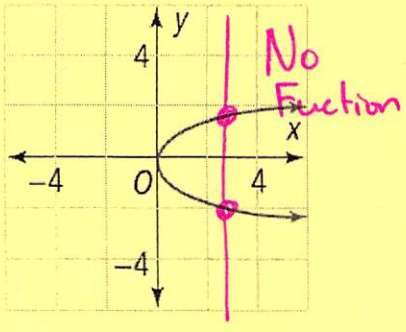
How do we determine if the above **relation** is a **function**?

You can tell whether a relation is a function by analyzing the graph of the relation using the vertical line test.

If any vertical line passes through more than 1 point of the graph, then the relation is not a function

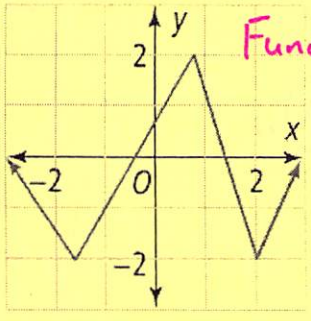
Use the Vertical Line Test to determine which graphs represent functions

I.



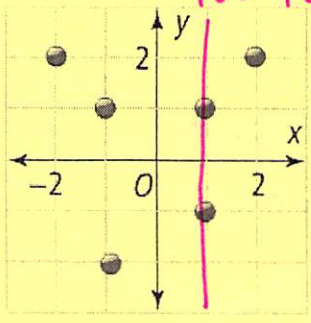
No Function

II.



Function

III.



No Function

Use the vertical line test to determine whether each relation is a function.

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

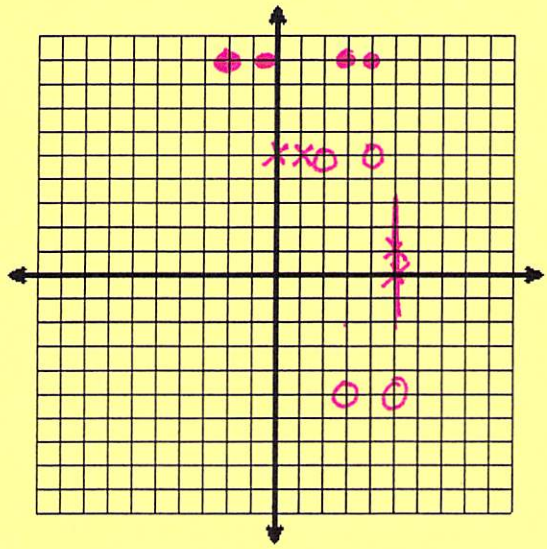
Function

2. { (5, 0), (0, 5), (5, 1), (1, 5)} X

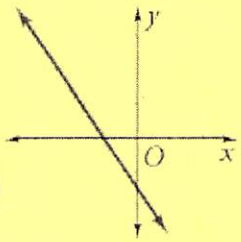
No Function

3. {(-2, 9), (3, 9), (-0.5, 9), (4, 9)} •

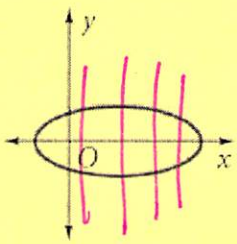
Function



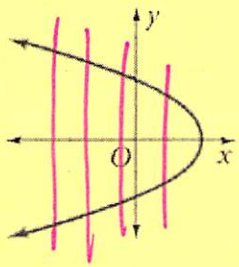
Use the vertical line test to determine whether each graph is the graph of a function.



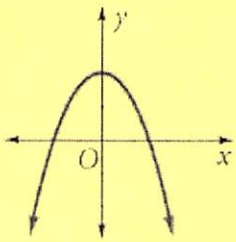
Function



No Function



No Function



Function