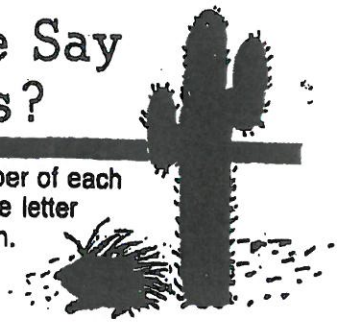
ANSWER KEY

What Did the Baby Porcupine Say When It Backed Into a Cactus?



Determine which of the relations below are functions. Find the number of each relation that *is* a function at the bottom of the page and cross out the letter below it. When you finish, the answer to the title question will remain.

Function ① {(−2, 7), (−1, 5), (0, 3), (1, 1), (2, 1)}

Function ② {(−7, 20), (3, 5), (0, 5), (−2, 0), (6, −4), (−6, −9), (4, 4)}

Not a Function ③ {(4, 8), (−3, −2), (9, 6), (2, −1), (−4, −5), (2, 7), (−8, 0)}

④ Function

x	y
0	−19
1	−12
2	−4
3	3
4	13
5	27

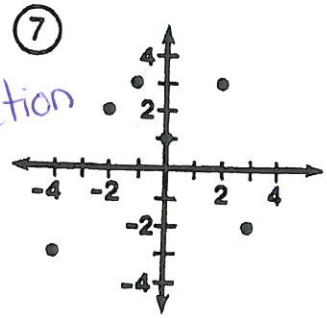
⑤ Function

x	y
−5	8
−3	8
−1	−2
1	−2
3	11
5	23

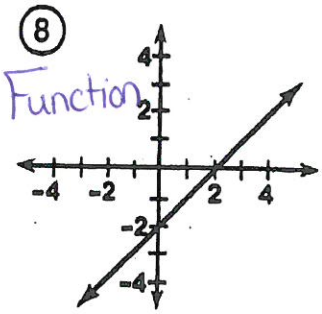
⑥ Not a Function

x	y
−2	−7
−2	5
0	−16
2	0
2	6

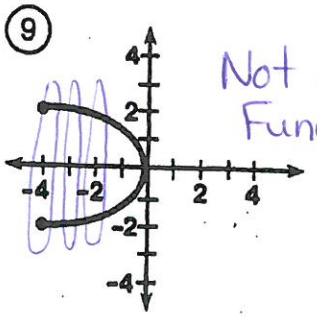
⑦ Function



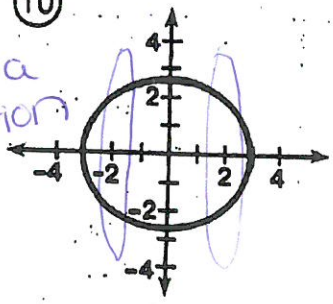
⑧ Function



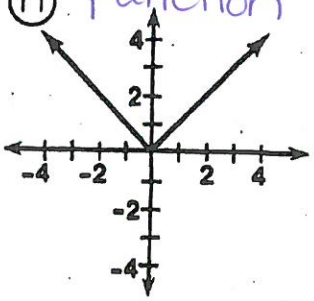
⑨ Not a Function



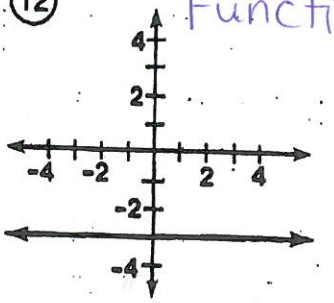
⑩ Not a Function



⑪ Function



⑫ Function



5	12	10	7	1	3	9	11	2	4	6	8
F	O	H	A	S	I	M	T	O	R	A	D

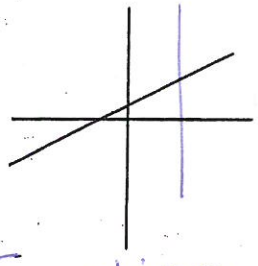
ANS: Hi Ma.

FUNCTIONS
VERTICAL LINE TEST

If an equation represents a function, there is one and only one **y** value for each distinct **x**.

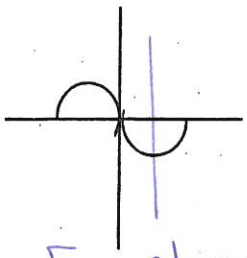
Look at each of the following graphs.
Which represent functions.

1).



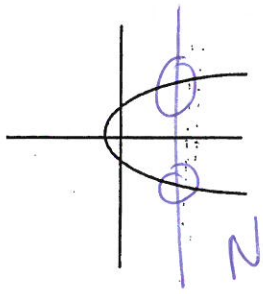
Function

2).



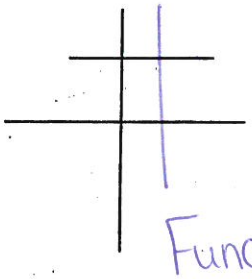
Function

3).



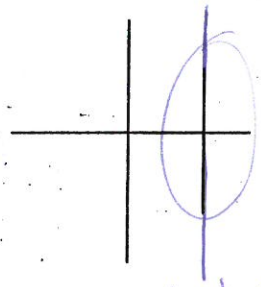
Not a Function

4).



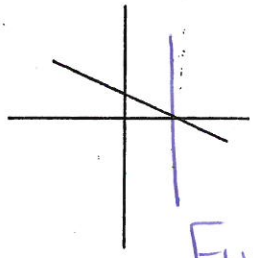
Function

5).



Not a Function

6).



Function

7). **Explain why the vertical line tests works.**

The line is a visual way to determine if the graph is a function or not.

If the vertical line intersects at only one point of the graph, the graph is a function. This indicates that each independant variable (x) in the data set matches up to a unique dependant variable (y). You cannot have two values (2 different ys) for one independant variable (x).

If the vertical line intersects at more than one point, the graph is not a function.

Worksheet

ALGEBRA

Relations and Functions

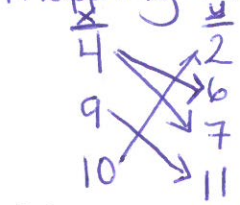
Name: _____

Period: ____

Is each relation a function? Use a mapping diagram. Explain your answer.

1. {(4, 7), (9, 11), (4, 6), (10, 2)}

mapping diagram

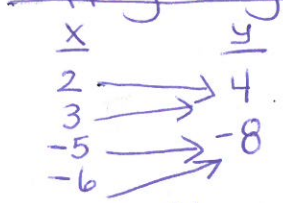


Is it a function? No

Explain: The X coordinate 4 has a relation with 2 different y coordinates (6 and 7). It is not a function.

2. {(-5, -8), (2, 4), (3, 4), (-6, -8)}

mapping diagram



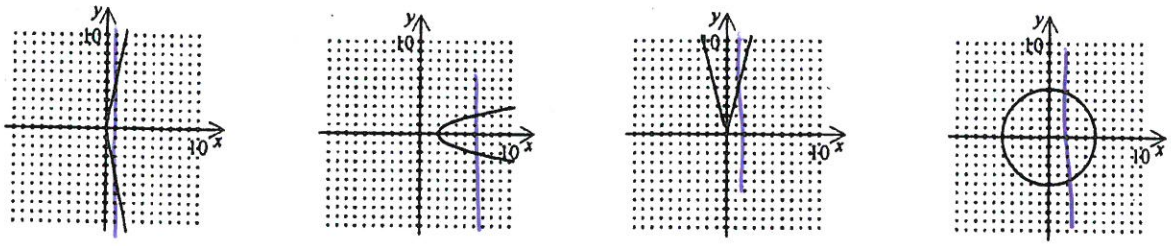
Is it a function? Yes

Explain: The X coordinates of each ordered pair is paired up with a unique y coordinate.

Identify which of the following graphs are NOT functions.

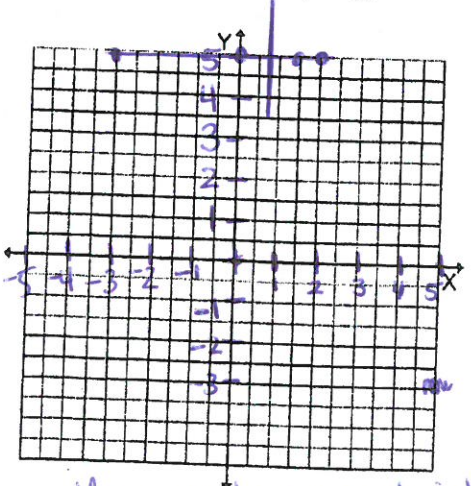
Answer(s): A, B and D. (there may be more than one!)

3. [A] [B] [C] [D]



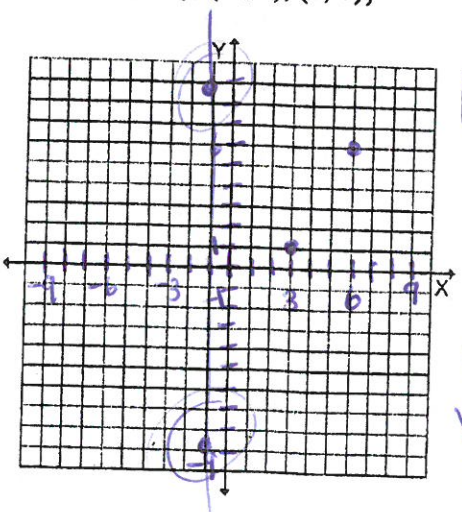
Is each relation a function? Use the vertical line test. Explain your answer.

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



Yes. Only 1 point intersects with the Vertical line test

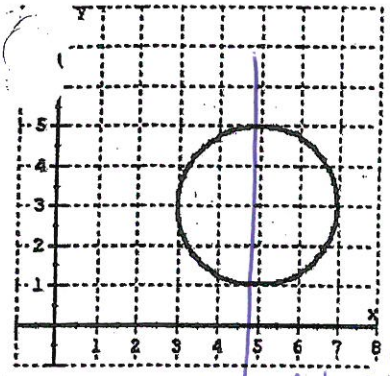
5. {(-1, -9), (1, 3), (-1, 9), (6, 6)}



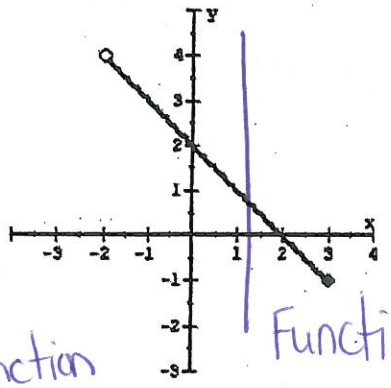
Not a function. 2 points intersect with the vertical line test.

Introductions to Functions Worksheet

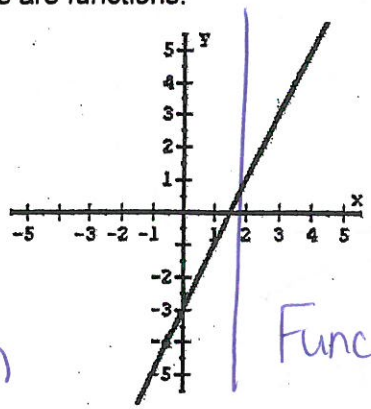
Use the vertical line test to determine which of the following graphs are functions.



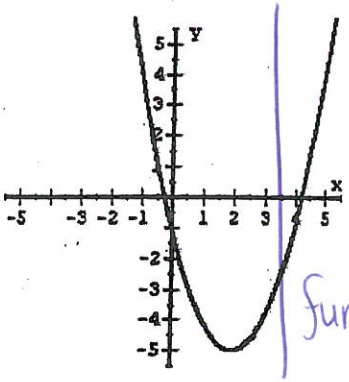
Not a function



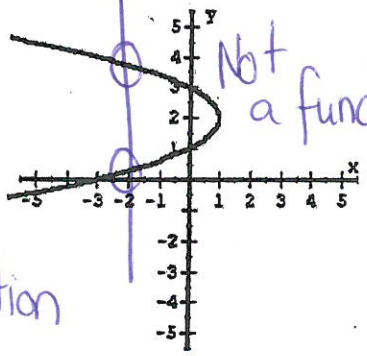
Function



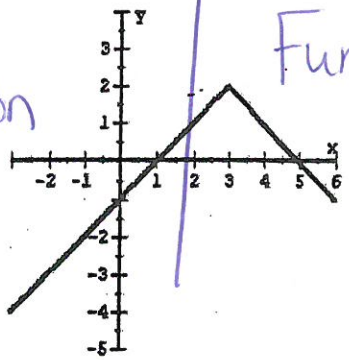
Function



function



Not a function



Function

Which relations below are functions? #1, ~~#~~ 3

?

#1 and 3. Each ordered pair ~~[illegible]~~ has the X coordinates with only 1 unique Y coordinate

Relation #1 { (3,4), (4,5), (6,7), (8,9) }
Relation #2 { (3,4), (4,5), (6,7), (3,9) }
Relation #3 { (-3,4), (4,-5), (0,0), (8,9) }
Relation #4 { (8, 11), (34,5), (6,17), (8,19) }

3) Which relations below are functions? ~~#~~ 2

Why?

Only relation #2 has the X coordinate with only 1 unique Y coordinate.

Relation #1 { (3,4), (4,5), (6,7), (3,-9) }
Relation #2 { (3,4), (4,5), (6,7), (5,4) }
Relation #3 { (0,4), (4,-5), (0,0), (8,9) }
Relation #4 { (8, 11), (34,5), (6,17), (6,19) }

r the following relation to be a function, X cannot be what values?
11), (34,5), (6,17), (X ,22) }

X cannot be _____.

5) For the following relation to be a function, X cannot be what values?
{ (12, 13), (-11, 22), (33, 101), (X ,22) }

nnot be 12, -11, or 33.

o) For the following relation to be a function, X can not be what values?
{ (12,14), (13,5) , (-2,7), (X,13) }

X cannot be 12, 13 or -2.

7) For the following relation to be a function, X can not be what values?
{ (13,14), (12,5) , (16,7), (X,13) }

X cannot be 13, 12, or 16.

Alex states that the relation below is not a function. Lillian says that it is a function. Who is correct? Explain your reasoning.

Relation { (13,14), (12,5) , (16,7), (13, 14), (-2, 33), (13, 14 }

Explanation:

Lilian is correct. The relation is a function because (13, 14) although repeated 3 times is still 1 X coordinate with the same y-coordinate