

4-6. Relations and Functions

1 Draw the mapping diagram that represents the relation and determine whether the relation is a function. $\{(-3, -6), (-1, -6), (5, -6), (8, -6)\}$

2 Draw the mapping diagram that represents the relation and determine whether the relation is a function. $\{(-8, -6), (-5, 2), (-8, 1), (7, 3)\}$

3 Tell whether the relation is a function. **Explain.**

x	y
0	-4
1	0
2	2
3	0

4 Tell whether the relation is a function. **Explain.**

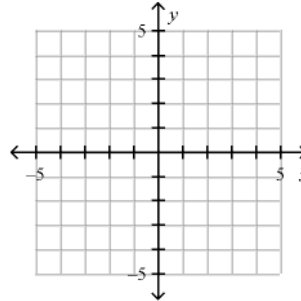
x	y
0	-4
1	0
2	2
2	0

5 Consider the set of ordered pairs, $\{(1, 1), (3, 5), (5, 9), (7, 13)\}$.

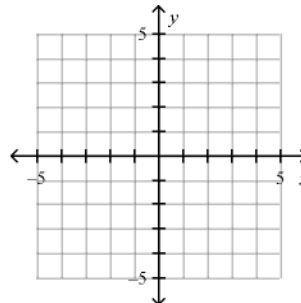
A Tell whether the set of ordered pairs could represent a function. **Explain.**

B Tell whether the set of ordered pairs satisfies a *linear* function. **Explain.**

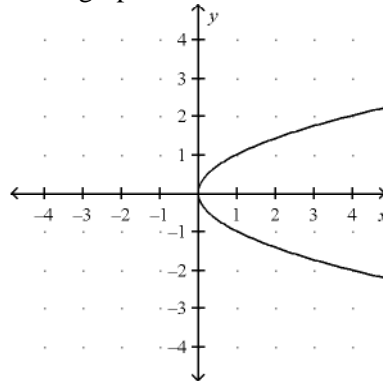
6 Plot the coordinates and tell whether the relation is a function. **Explain your reasoning.** $\{(-1, -2), (3, -1), (-5, 2), (-3, -5)\}$



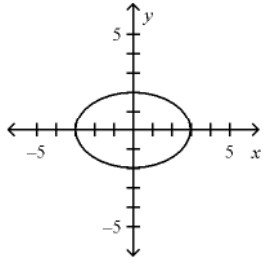
7 Plot the points and tell whether the set represents a function. **Explain.** $\{(4, 0), (4, -5), (4, -2), (2, -4)\}$



8 Is the graph a function? Use the vertical line test.

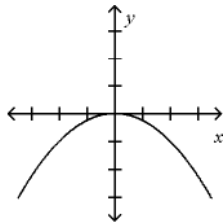


9 Tell whether the relation is a function. Explain.

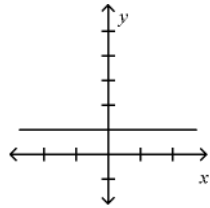


10 Identify each graph as being a *linear function*, a *non-linear function*, or *not a function*. **Explain** each choice.

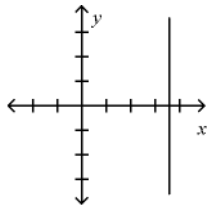
A



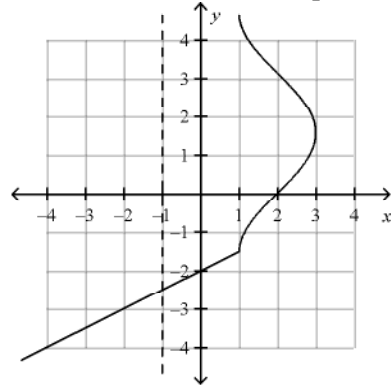
B



C



11 A student drew the dashed line on the graph shown and concluded that the graph represented a function. Is the student correct? Explain



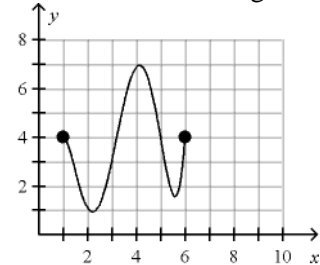
Multiple Choice.

12 Give the domain and range of the relation.

x	y
4	9
6	13
0	0
-5	-9

- A D: $\{-9, 0, 9, 13\}$; R: $\{-5, 0, 4, 6\}$
- B D: $\{4, 6, -5, 9, 13, -9\}$; R: $\{0\}$
- C D: $\{-5, 4, 6\}$; R: $\{-9, 9, 13\}$
- D D: $\{-5, 0, 4, 6\}$; R: $\{-9, 0, 9, 13\}$

13 Give the domain and range of the relation.



- A D: $0 \leq x \leq 7$; R: $1 \leq y \leq 7$
- B D: $1 \leq x \leq 6$; R: $1 \leq y \leq 7$
- C D: $2 \leq x \leq 6$; R: $4 \leq y \leq 7$
- D D: $1 \leq x \leq 7$; R: $1 \leq y \leq 6$