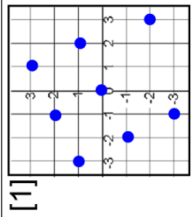
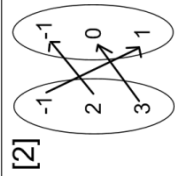


Example 3 Evaluating functions

Function notation $f(x) = y$
Reads as "f of x equals y". It means that the function named "f" has an input of x and an output of y.



$f(3) = \underline{\hspace{2cm}}$
 $f(\underline{\hspace{2cm}}) = -1$



$f(3) = \underline{\hspace{2cm}}$
 $f(\underline{\hspace{2cm}}) = -1$

[3] $f(x) = 2x + 1$
 $f(3) = \underline{\hspace{2cm}}$
 $f(\underline{\hspace{2cm}}) = -1$

[4] $\{(2, -1), (3, 0), (2, 1), (-3, 1)\}$ $f(3) = \underline{\hspace{2cm}}$ $f(\underline{\hspace{2cm}}) = -1$

RELATION:

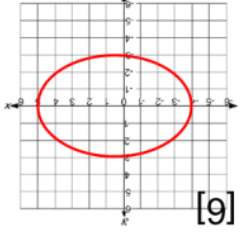
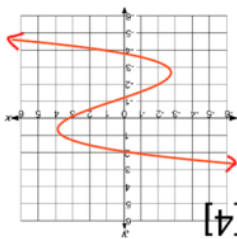
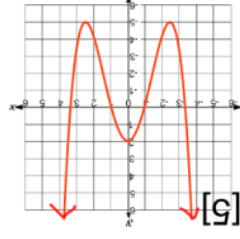
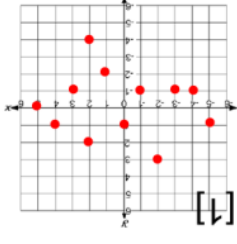
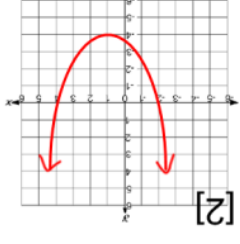
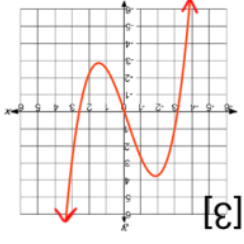
FUNCTION:

Relations & Functions

Example 2 Vertical line test

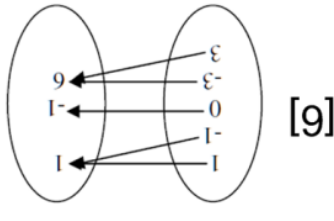
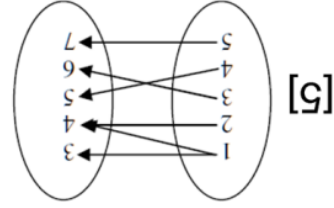
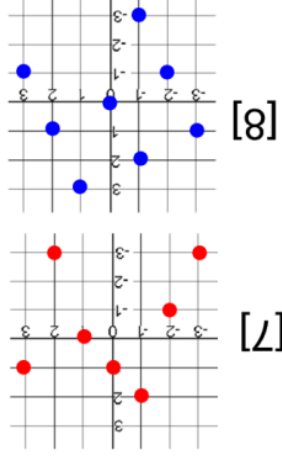
Like in the scatter plot example on the last page, if a vertical line drawn on the graph of a relation passes through more than one point, it is NOT a function.

Determine if each graph shows a function or a relation only.



Example 1 Function or relation only?

- [1] $\{(-1, 2), (0, 3), (1, 2), (3, 1), (2, 0)\}$
 [2] $\{(2, -1), (3, 0), (2, 1), (-3, 1), (1, 0)\}$



[4]

x	y
-1	0
0	1
1	2
2	3
3	0
0	-1
-1	-3
-3	1

A relation can be represented as an equation or in these ways:

Ordered pairs	Table	Graph	Mapping Diagram								
$\{(-2, 3), (2, 0), (-2, 0), (1, 3), (1, 0)\}$	<table border="1"> <tr><td>x</td><td>y</td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>	x	y								
x	y										
	<table border="1"> <tr><td>x</td><td>y</td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>	x	y								
x	y										