

7.3 p. 462

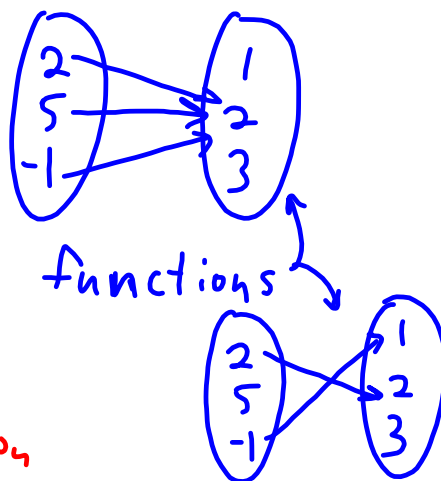
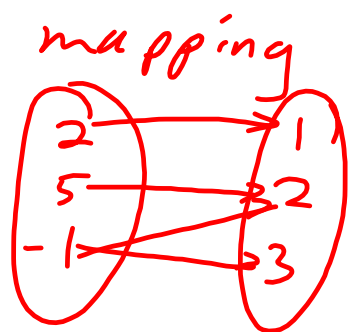
relation - a set of ordered pairs

ex $\{(2, 3), (0, 7), (1, 2), (5, 5), (2, -\frac{1}{7})\}$ ex $\{(2, 1), (2, 7), (2, -3)\}$ ex $\{(0, \pi)\}$

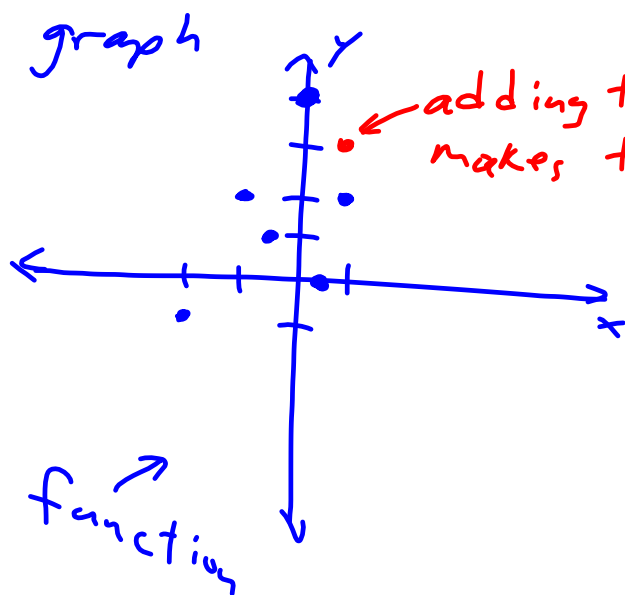
function - a relation in which
for each value of the first
component of the ordered pairs,
there's exactly one value of the
second component.

For any x , there's exactly one y .
(people, places)

A function is a mail carrier.
(envelopes, mailboxes)

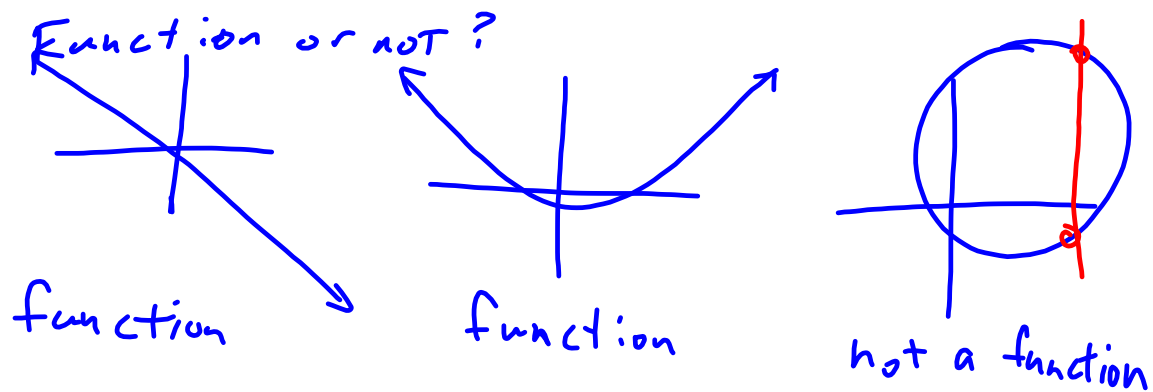


relation, not a function
 $\{(2, 1), (5, 2), (-1, 2), (-1, 3)\}$



adding this, for example, makes this a non-function

functions will pass the "vertical line test" that is, no vertical line will pass through more than one point.



They're all relations.

table

x	y
0	5
1	-7
2	2
3	41

function

x	y
0	1
0	2

not a function

x	y
1	2
0	2
5	2
21	2

function

$y = 2x + 7$
function

$x = 1$ ← a vertical
line
not a function

$y = 2$
function

like
#37

$y = x^2 + 2$
function

x	y
-2	6
-1	3
0	2
1	3
2	6

ex 40 $x = y^4$

x	y
16	-2
1	-1
0	0
1	1
	2

not
a function

Domain is the set of values for the independent variable (x).

Range is the set of values of the dependent variable (y).

(x, y)

Domain Range

Ex 10

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$\{(8,0), (5,4), (9,3), (3,8)\}$

Yes, it's a function

p.461

Domain: $\{8, 5, 9, 3\}$

Range: $\{0, 4, 3, 8\}$

ex 20

x	y
-4	-4
-4	0
-4	4
-4	8

not a function

$$D = \{-4\}$$

$$R = \{-4, 0, 4, 8\}$$