

Chp.5 Relations and Functions

Terms

Set: a collection of distinct objects

element: any object in a set

ex: $\{2, 4, 6, 8\}$

6 is the third element of the set

relation: associates the elements of one set with the elements of another set.

Example: consider the following set of fruits and the set of colors

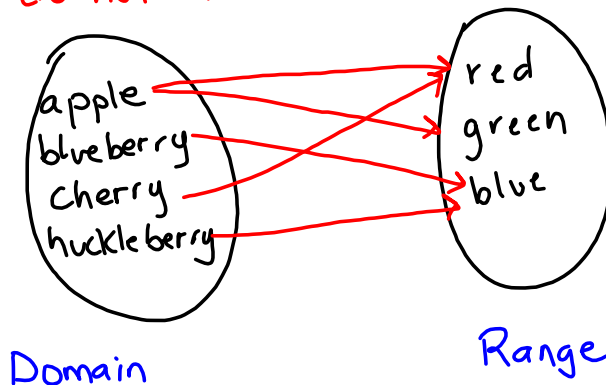
ordered pairs

(apple, red) (apple, green) (blueberry, blue)
 (cherry, red) (huckleberry, blue)

<u>Table</u>	fruits	color
	apple	red
	apple	green
	blueberry	blue
	cherry	red
	huckleberry	blue

arrow diagram

* do not list elements more than once



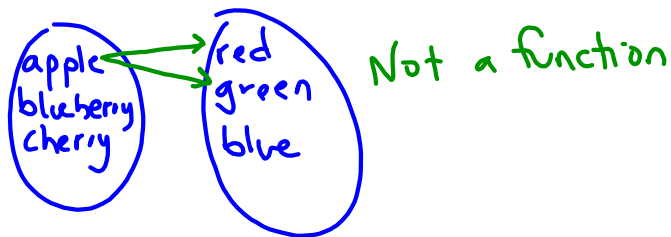
5.2: Functions

Domain: first set of elements of a relation

Range: second set of elements of a relation

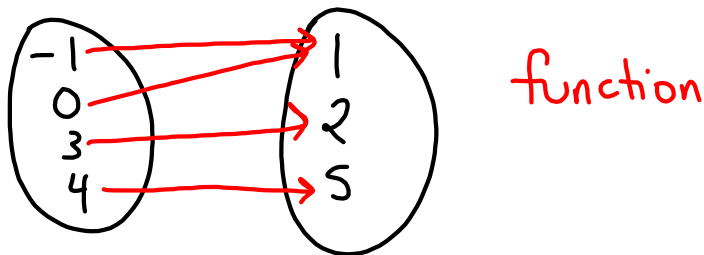
Function: a special relation where each element in the domain is associated with only one element in the range.

arrow diagrams



ordered pairs

$(0, 1)$ $(3, 2)$ $(4, 5)$ $(-1, 1)$



$(2, 3)$ $(4, 0)$ $(8, 1)$ $(2, 9)$

not a function

Domain $\{2, 4, 8\}$

Range $\{0, 1, 3, 9\}$