

5.1

Representing Relations

Lesson 1

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Connect

Definitions:

SET - is a collection of distinct objects

ELEMENT - of a set is one object in the set

RELATION - associates the elements of one set with the elements of another set

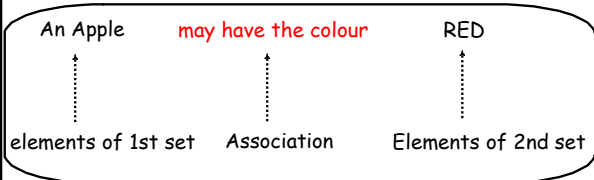
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Connect

Notes:

Consider the set of fruits and the set of colours

We can associate fruits with their colours



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Connect

NOTES:

So, this set of ordered pairs is a relation

Here are 2 ways to represent this relation

Ordered Pairs

Table

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

FRUIT	COLOUR
Apple	red
Apple	green
Blueberry	blue
Cherry	red
Huckleberry	blue

The heading of each column describes each set

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Connect **NOTES:**

Here is a 3rd way to represent the relation

Arrow Diagram - the 2 ovals represent the sets.
Each arrow associates an element for the first set with an element of the 2nd set.

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Practice **EXAMPLE 1**

Northern communities can be associated with the territories they are in. Consider the relation represented by this table

COMMUNITIES	TERRITORY
Hay River	NWT
Iqaluit	Nunavut
Nanisivik	Nunavut
Old Crow	Yukon
Whitehorse	Yukon
Yellowknife	NWT

Represent the following relation as a: 1) a set of ordered pairs
2) as an arrow diagram

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Practice **EXAMPLE 1**

Solution:

Ordered Pairs

- (Hay River, NWT)
- (Iqaluit, Nunavut)
- (Nanisivik, Nunavut)
- (Old Crow, Yukon)
- (Whitehorse, Yukon)
- (Yellowknife, NWT)

Arrow Diagram

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Practice **YOU TRY!**

Animals can be associated with the classes they are in.

ANIMAL	CLASS
Ant	Insecta
Eagle	Aves
Snake	Reptilia
Turtle	Reptilia
Whale	Mammalia

Represent the following relation as a:

1) a set of ordered pairs 2) as an arrow diagram

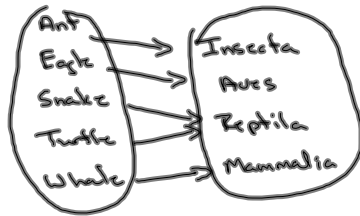
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Solution:

Ordered Pairs

(Ant, Insecta)
(Eagle, Aves)
(Snake, Reptilia)
(Turtle, Reptilia)
(Whale, Mammalia)

Arrow Diagram



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