5.1 - Representing Relations

January 10, 2020 8:31 AM

Define some terms:

- a set is a collection of objects (numbers, cities, animals, etc...)
- an element is an object in a set (5, Vancouver, dog, etc...)
- a relation associates the elements of one set with another.

One way to write a set is with braces {}.

Ex: Write the set of natural numbers up to 5.

$$\{1, 2, 3, 4, 5\}$$

Consider the sets of fruits and colours:

An apple — An element of the "fruit" set

may have the colour — Relation / association.

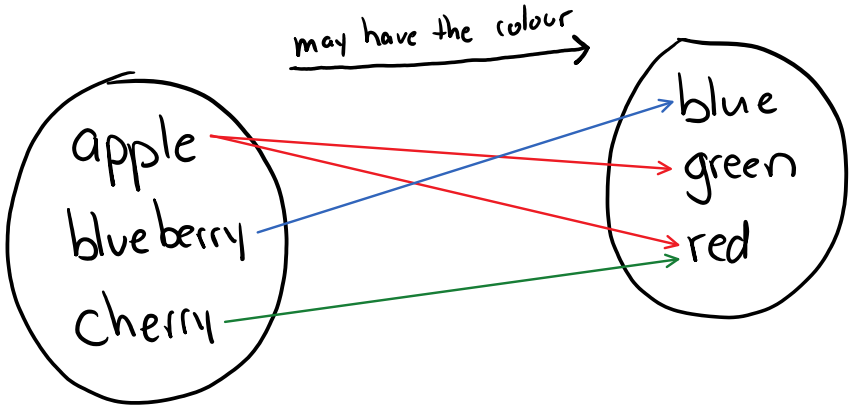
red — An element of the "colour" set

You could use a table to represent a relation:

Fruit	Colour
apple	red
apple	green
blueberry	blue
cherry	red

Or an arrow diagram:

of an arrow diagram



Ex: Northern communities can be associated to their territories:

Community	Territory
Hay River	NWT
Iqaluit	Nunavut
Nanisivik	Nunavut
Old Crow	Yukon
Whitehorse	Yukon
Yellowknife	NWT

① What is the relation?

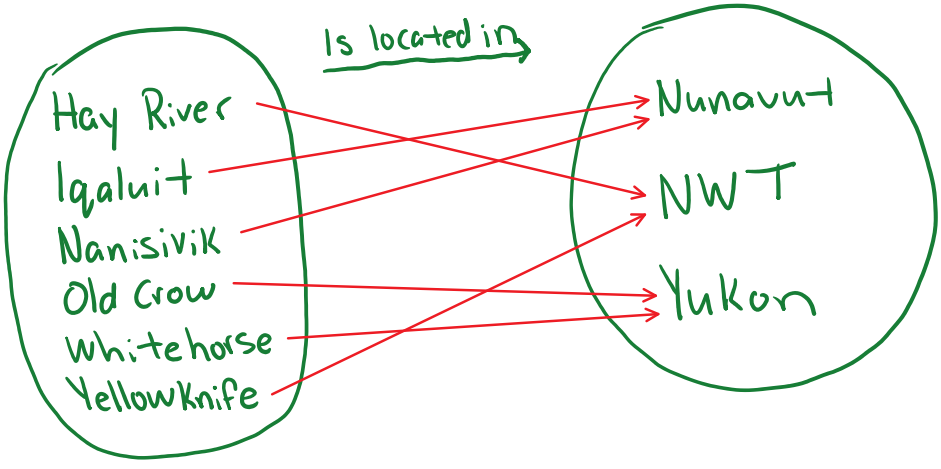
"is located in..." or

"is in the territory..."

etc...

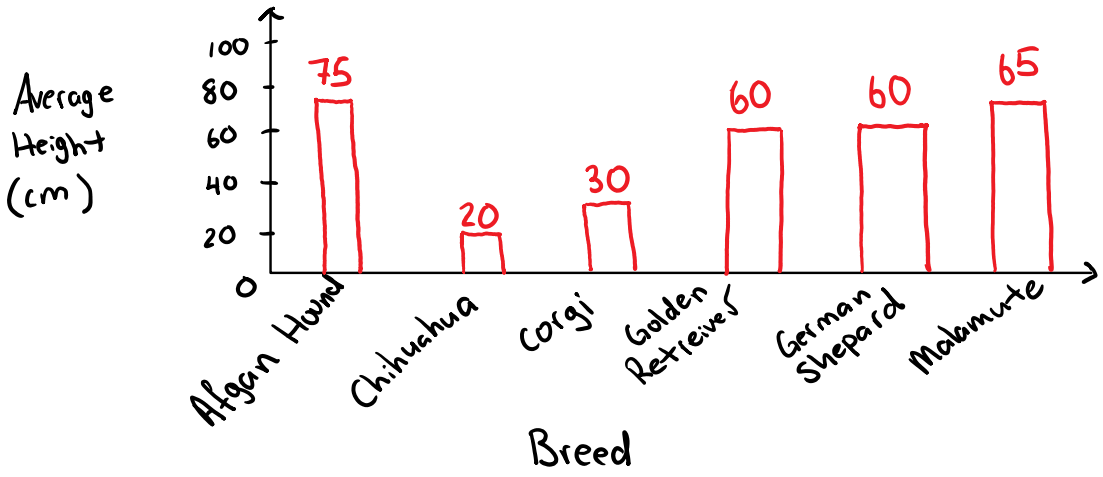
② Represent as ordered pairs (x, y) and as an arrow diagram.

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



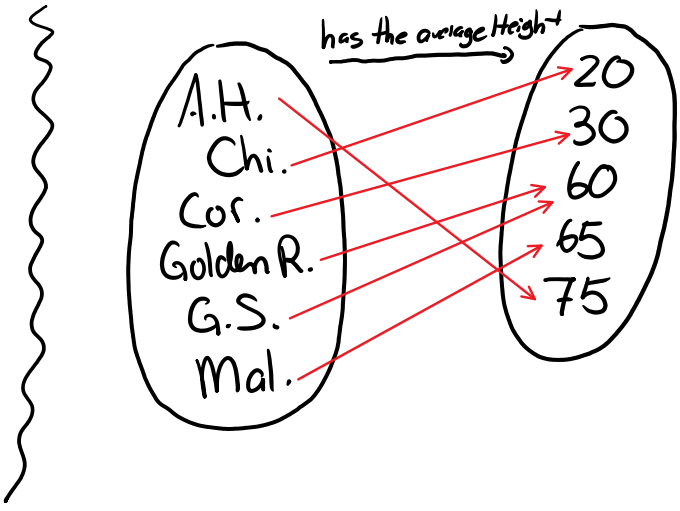
If the elements are numbers, you can represent the relation using a bar graph:

Ex: Different breeds of dogs can be related to their average height:



Represent as a table, and arrow diagram:

Breed	Average Height (cm)
Afgan Hound	75
Chihuahua	20
Corgi	30
Golden R.	60
G.S.	60
Malamute	65



HW: Pg. 266 #3, 4, 7-9, 11