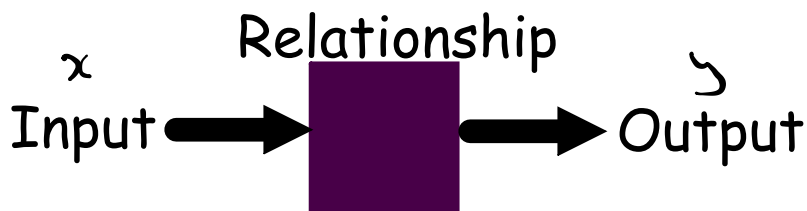# Linear Relations

Function: a special relationship where each input x has a single output y.

A function shows a link (relationship) between two elements that vary.

x Relationship y

Input ➡️ ⬛ ➡️ Output

Variables: quantities with changing values

(A symbol for a number we don't know yet)

If the value doesn't change then it is called a **constant**.

There are 2 types of variables: - **Independent** x

                                                        - **Dependent** y

Independent: - "x" variable

- the *input* value of the function (it causes the dependent variable to change)

Dependent: - "y" variable

- the *output* value of the function (reacts to the changes in the independent variable)

ex: $y = 2x + 1$

How to display functions

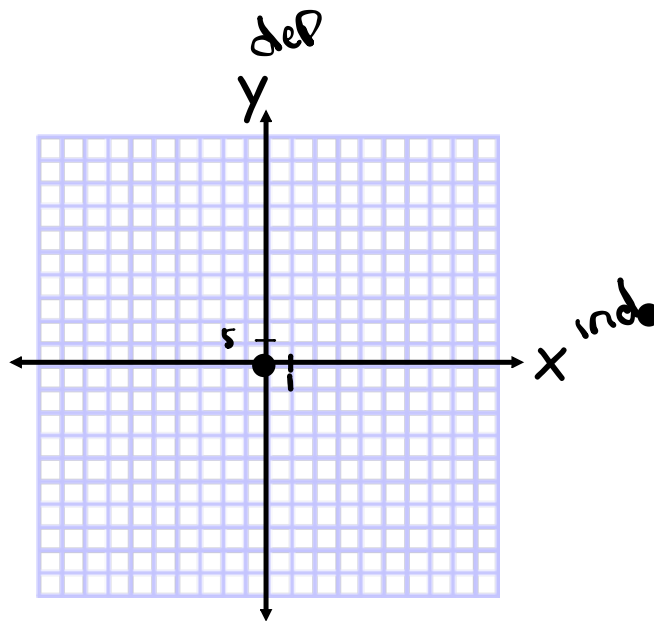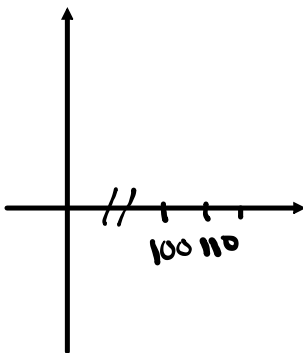## Table of values:

x (independent)					
y (dependent)					

OR

x	y

Graph:

dep

Y

x ind

100 110

x	y
1	3
	1

NB: Be careful with the scale

Equation:
(rule)

$$y = ax + b$$

$$y = mx + b$$

Steps to graph a function

Step 1: Identify the independent and dependent variables

Step 2: Draw a cartesian plane on graph paper.

Step 3: Determine the scale of the x and y axes.

Step 4: Make a table of values (minimum 4 points)

Step 5: Plot points onto graph.

Step 6: Connect points (using a ruler!)

Ex. Carla gets $5/hr to babysit.

Independent variable: # hrs

Depedent variable: $

# hrs	$
X	Y
0	0
1	5
2	10
3	15