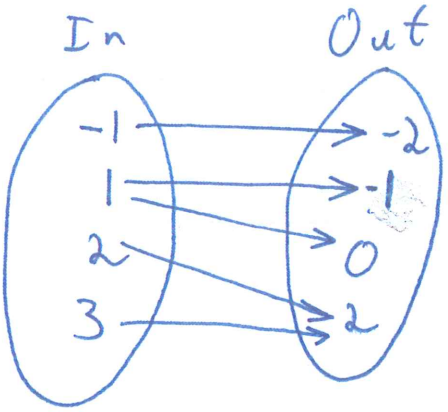
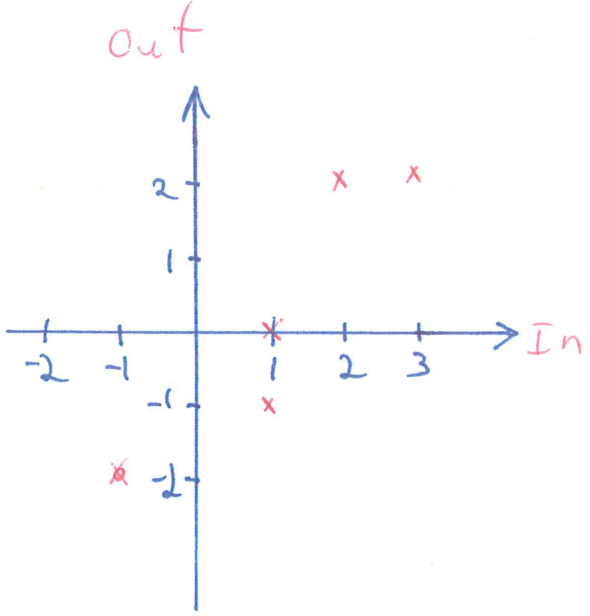
Unit 3: Relations, Functions, Domain and Range.

Example (I):





In	Out
-1	-2
1	-1
1	0
2	2
3	2

Domain: $\{-1, 1, 2, 3\}$

Range: $\{-2, -1, 0, 2\}$

Relation

Example (II):

(Monday, Pasta)
(Tuesday, Salmon)
(Wednesday, Taco)
(Wednesday, salmon)
(Thursday, Pasta)
(Friday, eggs)

Day	Food
Monday	Pasta
Tue.	Salmon
wed	Tac
Wed.	salmon
Thu.	Pasta
Fri.	eggs

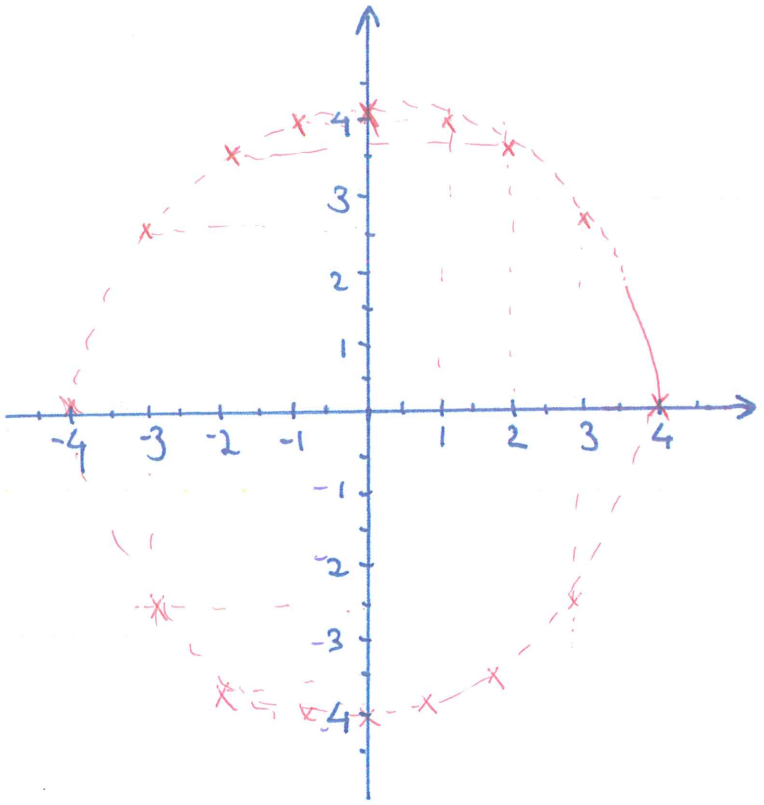
Domain: {Mon, Tue., Wed, Thu, Fri}

Range: {Pasta, Salmon, Taco, eggs}

Relation

Example III

x	y
4	0
3	2.6
2	3.5
1	3.9
0	4
-1	3.9
-2	3.5
-3	2.6
-4	0
-3	-2.6
-2	-3.5
-1	-3.9
0	-4
1	-3.9
2	-3.5
3	-2.6



if continuous

Domain: $[-4, 4]$

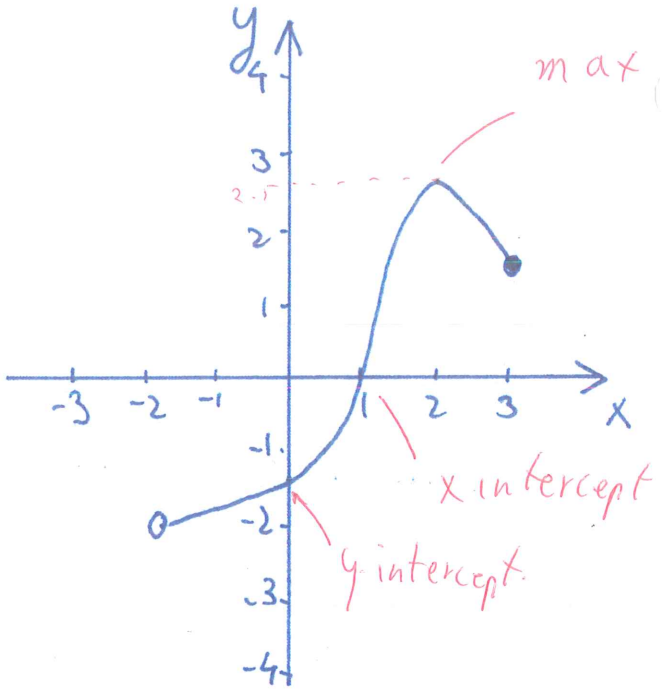
Range: $[-4, 4]$

$x^2 + y^2 = 16$

Relation

Example (IV)

x	y
0	-1.5
-1.99	-1.99
1	0
2	2.5
3	2



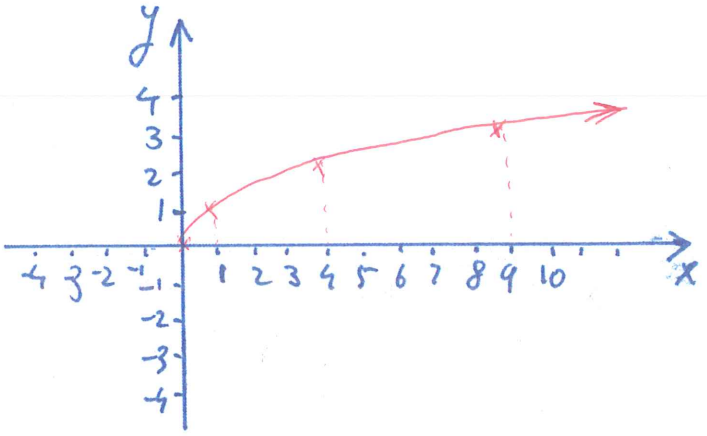
Domain: $(-2, 3]$

Range: $(-2, 2.5]$

vertical-line test $\longrightarrow$ Function

Example (V)

x	y
0	0
1	1
4	2
9	3



Formula:

$y = \sqrt{x}$

Domain: $[0, \infty)$

Range: $[0, \infty)$

function