

BBMP 1103

Management Mathematics

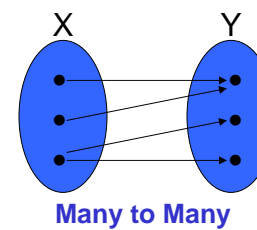
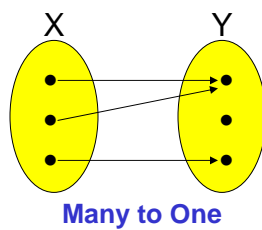
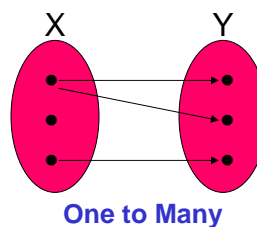
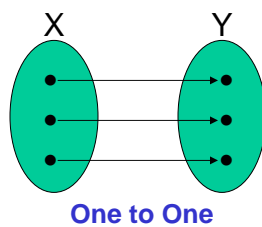
Chapter:3 – Introduction to Functions

Prepared by

Richard Ng

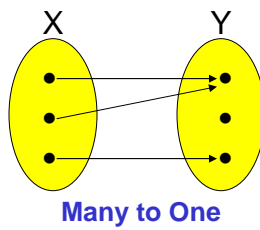
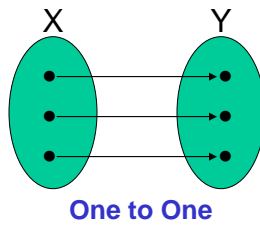
1. Relations and Functions

❖ Four types of relations:



2. Function

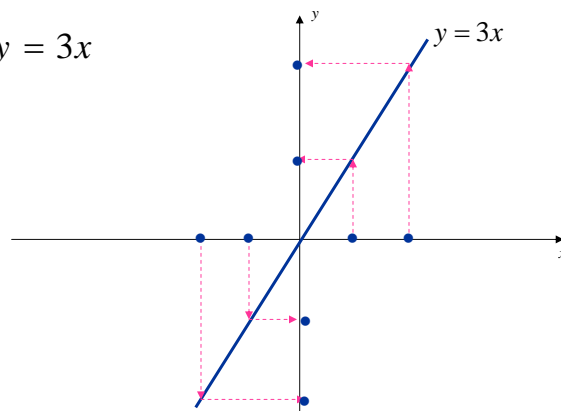
❖ Any relations that produce only one output:



Example: 1

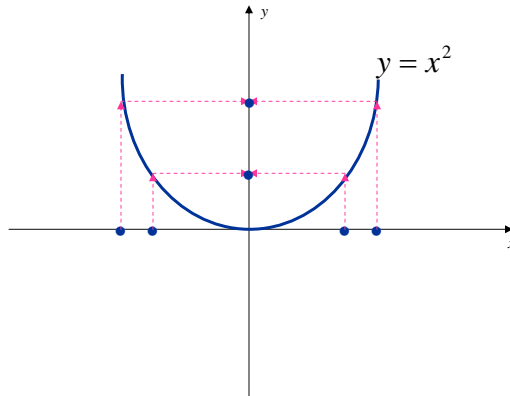
Which of the following equations will define y as a function of x ?

a) $y = 3x$



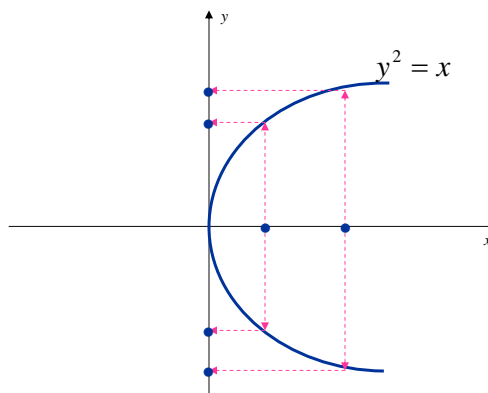
The above relation is a **1 to 1** (Answer: Function)

b) $y = x^2$



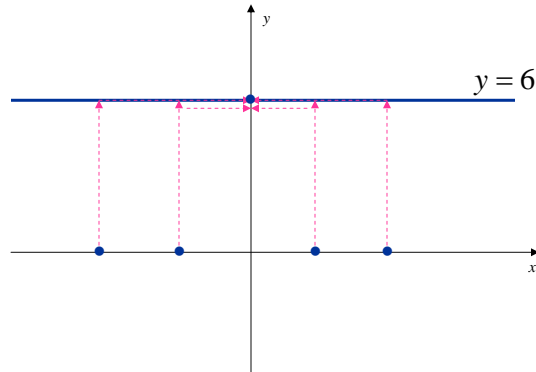
The above relation is a **Many to 1** (Answer: Function)

c) $y = \pm\sqrt{x}$ atau $y^2 = x$



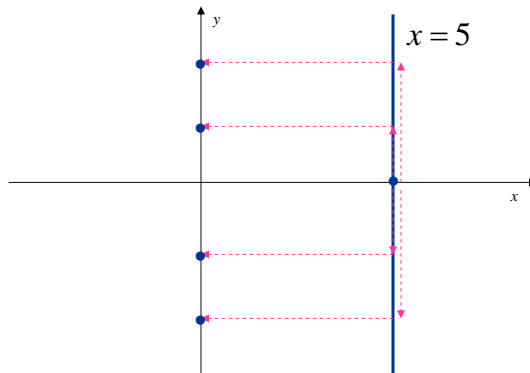
The above relation is a **1 to Many** (Answer: Not Function)

d) $y = 6$



The above relation is a **Many to 1** (Answer: Function)

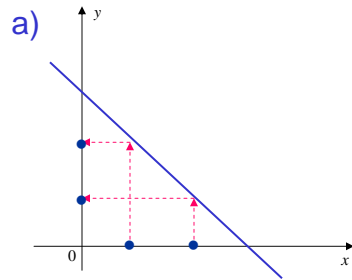
e) $x = 5$



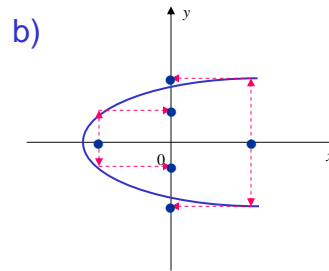
The above relation is a **1 to Many** (Answer: Not Function)

Exercise: 3.2

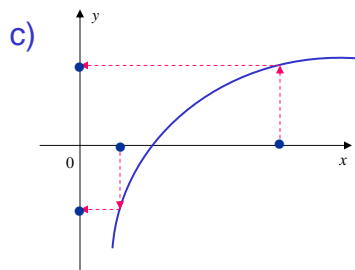
Which of the following graphs represent a function of x ?



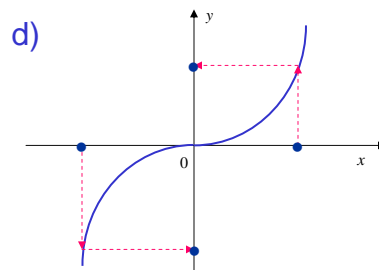
The above relation is a **One to One**.
Answer: **Function**



The above relation is a **One to Many**.
Answer: **Not Function**



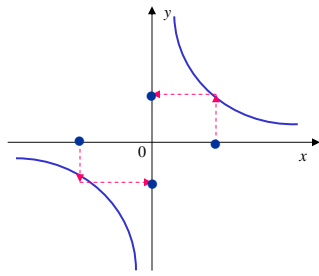
The above relation is a **One to One**.
Answer: **Function**



The above relation is a **One to One**.
Answer: **Function**

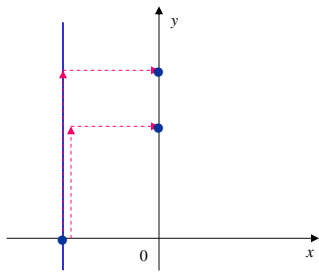
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e)



The above relation is a **One to One**.
Answer: **Function**

f)



The above relation is a **One to Many**.
Answer: **Not Function**

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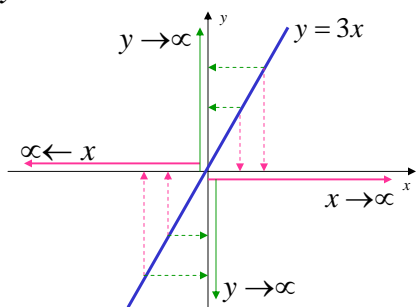
3. Function, Domain and Range

- ❖ Domain = is a set of all values of x that defines y
- ❖ Range = is a set of all values of y for a given domain

Example: 2

Determine the domain and range of the following functions:

a) $y = 3x$

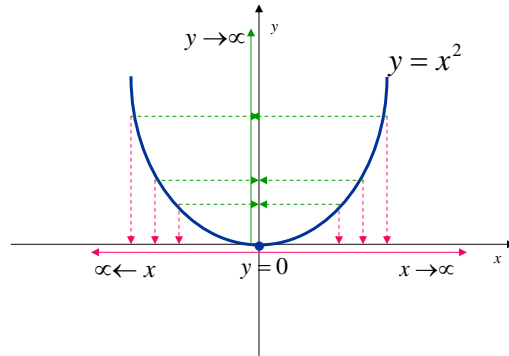


Domain = all values of x
where $x \in R$

Range = all values of y
where $y \in R$

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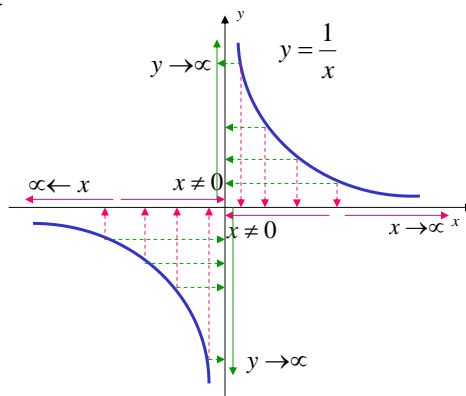
b) $y = x^2$



Domain = all values of x
where $x \in R$

Range = all values of y
where $y \in R$ and $y \geq 0$

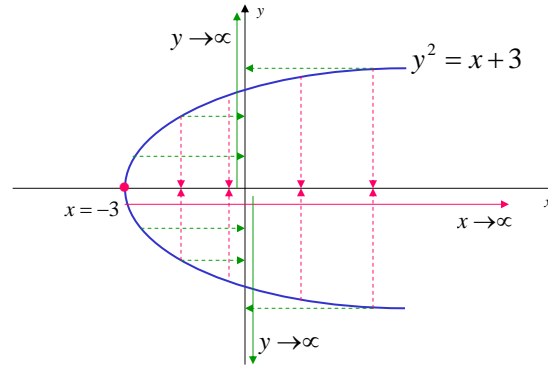
c) $y = \frac{1}{x}$



Domain = all values of x where
 $x \in R$ and $x \neq 0$

Range = all values of y where
 $y \in R$ and $y \neq 0$

d) $y = \sqrt{x+3}$ atau $y^2 = x+3$



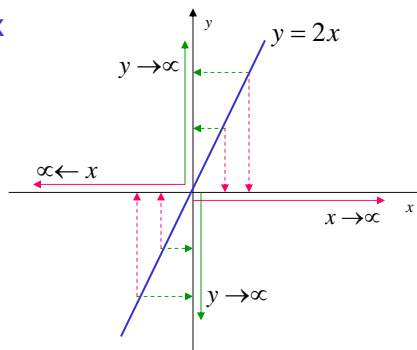
Domain = all values of x where
 $x \in R$ and $x \geq -3$

Range = all values of y where
 $y \in R$

Exercise 3.3:

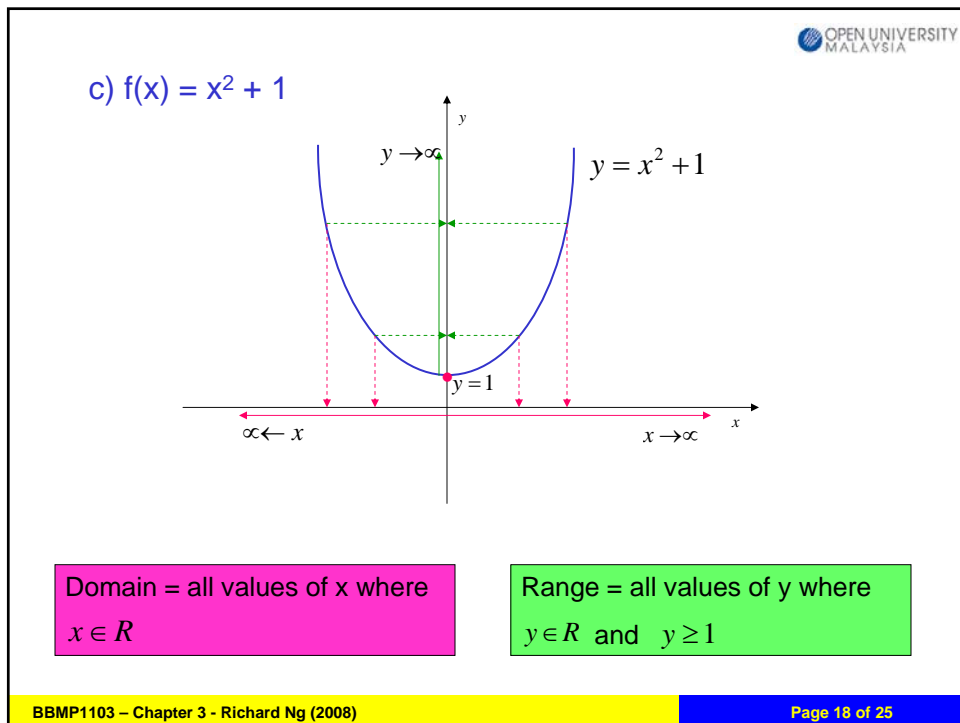
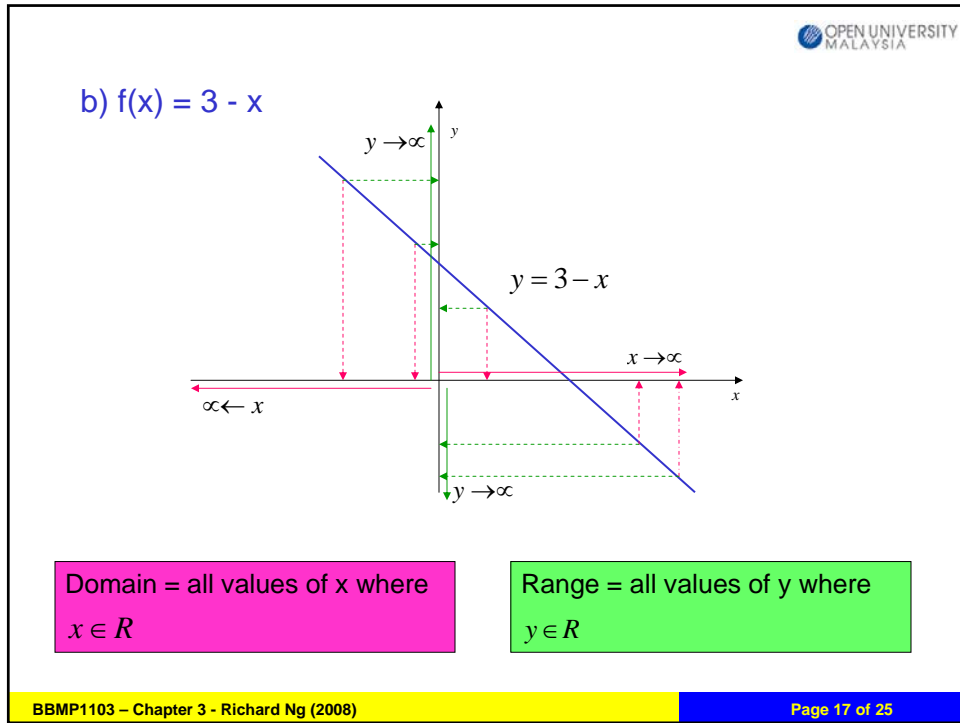
Determine the domain and range of the following functions:

a) $f(x) = 2x$



Domain = all values of x where
 $x \in R$

Range = all values of y where
 $y \in R$



$$d) f(x) = \frac{1}{x-4}$$

$$y = \frac{1}{x-4} \longrightarrow x-4 \neq 0$$

Domain = all values of x where $x \in R$ and $x \neq 4$

$$x-4 = \frac{1}{y} \longrightarrow x = \frac{1}{y} + 4$$

Denominator
cannot be zero

Range = all values of y where $y \in R$ and $y \neq 0$

$$e) f(x) = \sqrt{x}$$

$$y = \sqrt{x} \longrightarrow x \geq 0$$

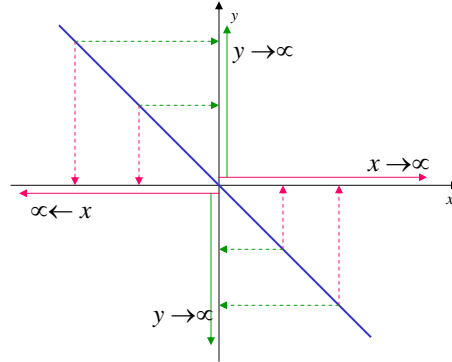
Domain = all values of x where $x \in R$ and $x \geq 0$

$$x = y^2 \longrightarrow y \rightarrow \infty$$

Range = all values of y where $y \in R$

Exercise 3.4:

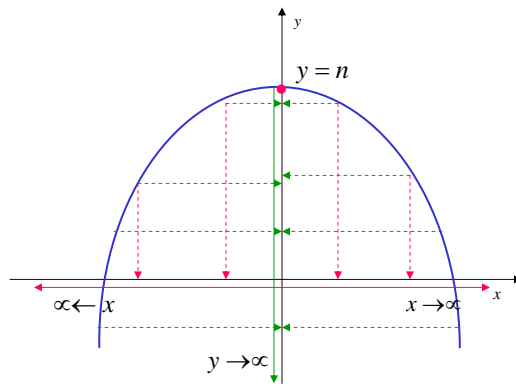
a)



Domain = all values of x where
 $x \in R$

Range = all values of y where
 $y \in R$

b)



Domain = all values of x where
 $x \in R$

Range = all values of y where
 $y \in R$ and $y \leq n$

