Example 1.11
Let A = {1, 2, 3, 4} and B = {2, 5, 8, 11, 14} be two sets. Let $f : A \rightarrow B$ be a function given by $f(x) = 3x - 1$. Represent this function
(i) by arrow diagram
(ii) in a table form
(iii) as a set of ordered pairs
(iv) in a graphical form

Solution :

A = {1, 2, 3, 4} ; B = {2, 5, 8, 11, 14}

$f(x) = 3x - 1$

f(1) = 3_____ −1 = _____ − 1 = 2

f(2) = 3_____ − 1 =_____ − 1 = 5

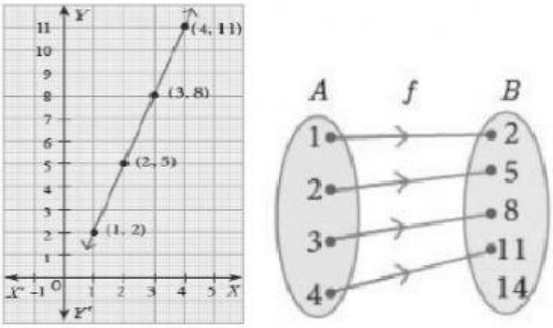
f(3) = 3_____ − 1 = _____ − 1 = 8

f(4) = 4_____ − 1 =_____ − 1 = 11

(i) Arrow diagram

Let us represent the function $f : A \rightarrow B$ by

an arrow diagram



(ii) Table form

The given function f can be represented in a

tabular form as given below

x	1	2	3	4
f(x)	2	5	8	11

(iii) Set of ordered pairs

The function f can be represented as a set of ordered pair as

$f = \{(1, 2), (2, 5), (3, 8), (4, 11)\}$

(iv) Graphical form

In the adjacent xy-plane the points
(1, 2), (2, 5), (3, 8), (4, 11) are plotted

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2. Let f: A → B be a function define by

$f(x) = \frac{x}{2} - 1$, where A = {2, 4, 6, 10, 12},

B = {0, 1, 2, 4, 5, 9}. Represent f by

(i) set of ordered pairs ; (ii) a table ;

(iii) an arrow diagram ; (iv) a graph

Solution :

Given

$f(x) = \frac{x}{2} - 1$

$x = 2 \Rightarrow f(____) = \frac{\quad}{2} - 1 = ____ - 1 = 0$

$x = 4 \Rightarrow f(____) = \frac{\quad}{2} - 1 = ____ - 1 = 1$

$x = 6 \Rightarrow f(____) = \frac{\quad}{2} - 1 = ____ - 1 = 2$

$x = 10 \Rightarrow f(____) = \frac{\quad}{2} - 1 = ____ - 1 = 4$

$x = 12 \Rightarrow f(____) = \frac{\quad}{2} - 1 = ____ - 1 = 5$

(i) Set of order pairs :

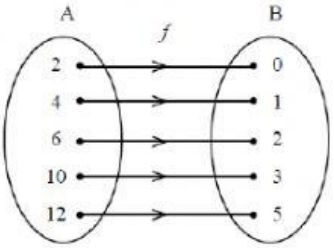
(ii) Table :

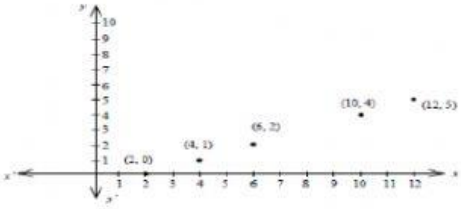
(iii) Arrow diagram :

(iv) Graph

f = {(2, 0), (4, 1), (6, 2), (10, 4), (12, 5)}

x	2	4	6	10	12
f(x)	0	1	2	4	5





3. Represent the function f = {(1, 2), (2, 2), (3, 2), (4, 3), (5, 4)} through(i) an arrow diagram (ii) a table form (iii) a graph

Solution :

(i) Arrow Diagram :

(ii) Table Form :

(iii) Graph :

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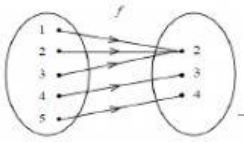
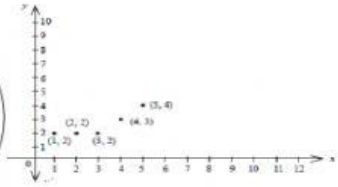
x	1	2	3	4	5
f(x)	2	2	2	3	4





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