

Activity 6

OBJECTIVE

To distinguish between a Relation and a Function.

MATERIAL REQUIRED

Drawing board, coloured drawing sheets, scissors, adhesive, strings, nails etc.

METHOD OF CONSTRUCTION

1. Take a drawing board/a piece of plywood of convenient size and paste a coloured sheet on it.
2. Take a white drawing sheet and cut out a rectangular strip of size $6\text{ cm} \times 4\text{ cm}$ and paste it on the left side of the drawing board (see Fig. 6.1).

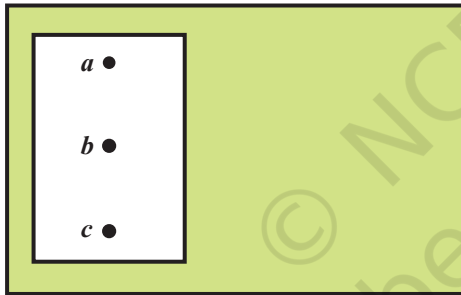


Fig. 6.1

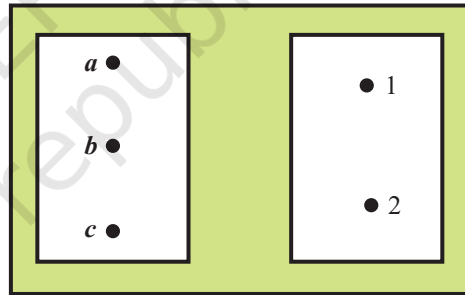


Fig. 6.2

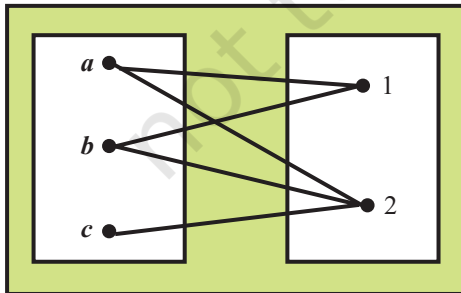


Fig. 6.3

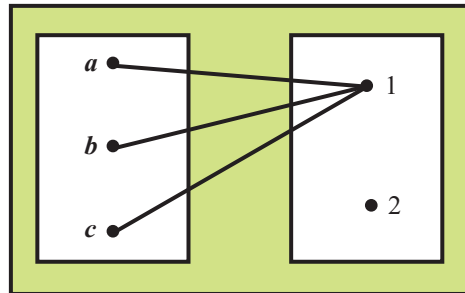


Fig. 6.4

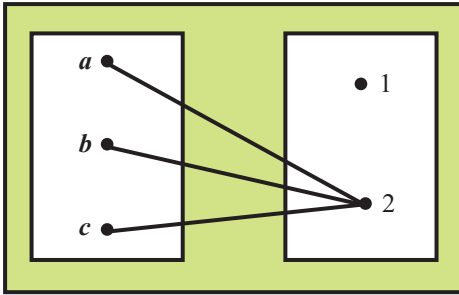


Fig. 6.5

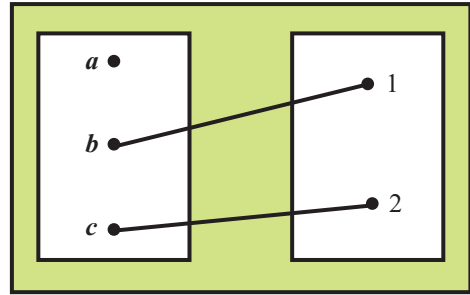


Fig. 6.6

3. Fix three nails on this strip and mark them as a , b , c (see Fig. 6.1).
4. Cut out another white rectangular strip of size $6\text{ cm} \times 4\text{ cm}$ and paste it on the right hand side of the drawing board.
5. Fix two nails on the right side of this strip (see Fig. 6.2) and mark them as 1 and 2.

DEMONSTRATION

1. Join nails of the left hand strip to the nails on the right hand strip by strings in different ways. Some of such ways are shown in Fig. 6.3 to Fig. 6.6.
2. Joining nails in each figure constitute different ordered pairs representing elements of a relation.

OBSERVATION

1. In Fig. 6.3, ordered pairs are _____.
These ordered pairs constitute a _____ but not a _____.
2. In Fig. 6.4, ordered pairs are _____. These constitute a _____ as well as _____.
3. In Fig 6.5, ordered pairs are _____. These ordered pairs constitute a _____ as well as _____.
4. In Fig. 6.6, ordered pairs are _____. These ordered pairs do not represent _____ but represent _____.

APPLICATION

Such activity can also be used to demonstrate different types of functions such as constant function, identity function, injective and surjective functions by joining nails on the left hand strip to that of right hand strip in suitable manner.

NOTE

In the above activity nails have been joined in some different ways. The student may try to join them in other different ways to get more relations of different types. The number of nails can also be changed on both sides to represent different types of relations and functions.