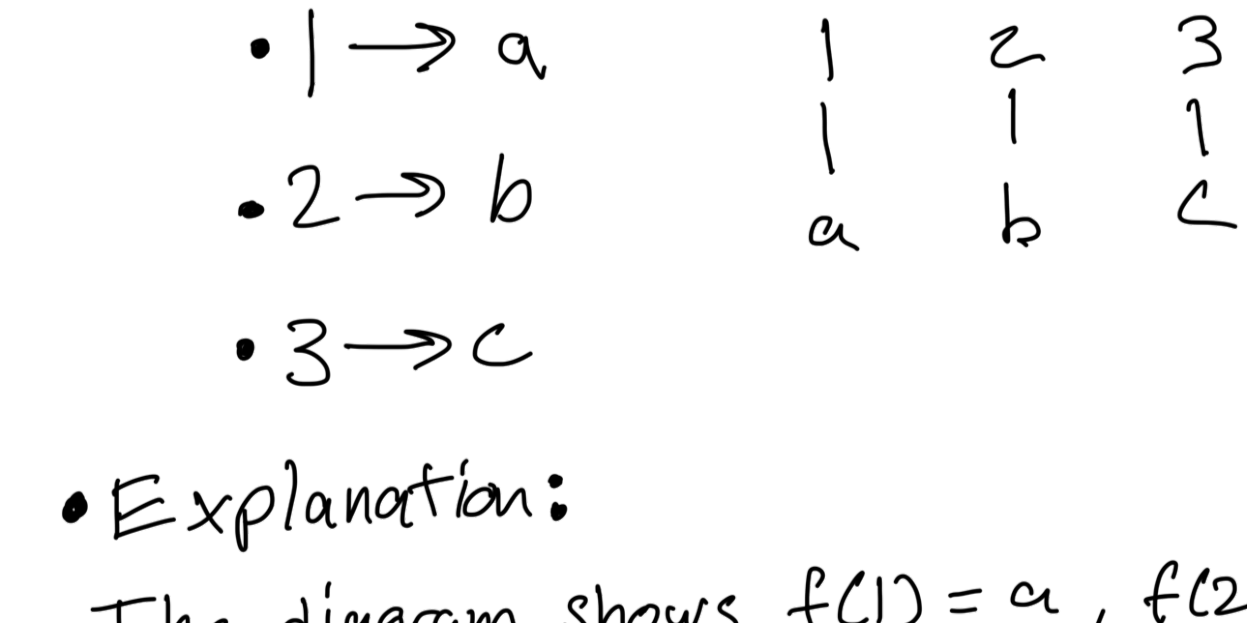
## ① Simple Function Mapping:

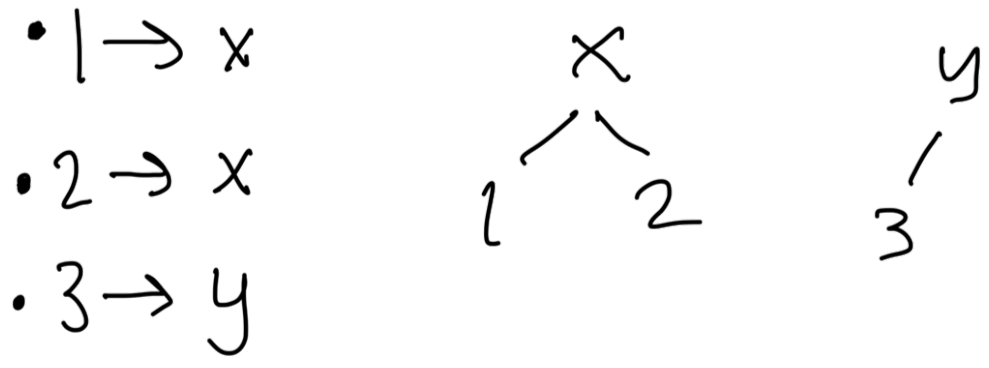
- Scenario: Consider a function f that maps elements from set $A = \{1, 2, 3\}$ to set $B = \{a, b, c\}$.
- Arrow Diagram Representation:




- Explanation:
  The diagram shows $f(1) = a$, $f(2) = b$, $f(3) = c$. Each input has a unique output, demonstrating a one-to-one function.

## ② Many-to-One Function:

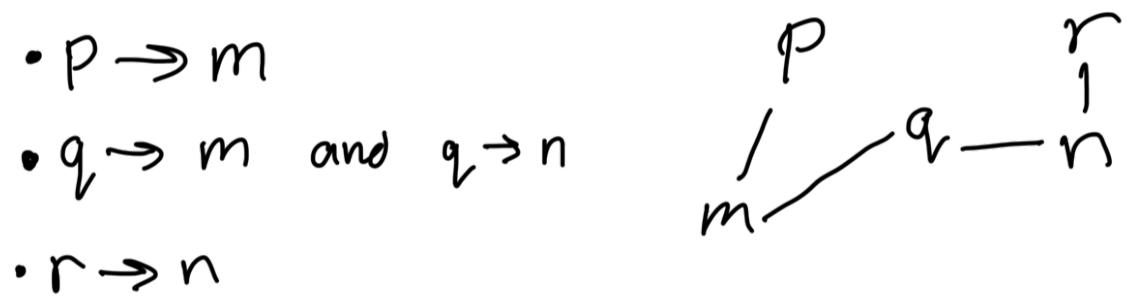
- Scenario: Let g be a function mapping from set $A = \{1, 2, 3\}$ to set $B = \{x, y\}$ such that:




- Explanation:
  In the arrow diagram, both 1 and 2 map to x, showing a many-to-one relationship. This indicates that while the function is valid, it is not one-to-one.

## ③ Representing a Relation:

- Scenario: Consider a relation R from set $A = \{p, q, r\}$ to set $B = \{m, n\}$




- Explanation:
  The arrow diagram for this relation shows that one element (q) in the domain relates to two elements in the codomain. This example illustrates that arrow diagrams can represent general relations where a single input may have multiple corresponding outputs.