Riviera International Academy

Revision Assignment-2078

Day 3 (Jestha17, 2078, Monday)

Class: Eight

Subject: English

Rewrite the following sentences into Indirect Speech:

a. She said, `German is easy to learn`.
b. The poor man exclaimed, `Will none of you help me?`
c. He said, `Will you listen to such a man?`
d. She said to me, ` Do your work yourself.`
e. Sarita said to Ram, `Please help me.`

Rewrite the following into Direct Speech.

a. I asked him if I had to talk to her.
b. He said that he was glad to be there that evening.
c. She asked me where I lived.
d. He said that the horse had died in the night.
e. Rama asked why he had gone there.

Subject- OBTE

1. What do you mean by occupational education?
2. Why Nepal is known as agricultural country? Explain
3. How technology have changed the country?

Subject – Science

Draw a electronic configuration of elements from atomic number 1 to 10.

Subject- Mathematics

Construct five questions from any chapter of class 7 and solve it.

Subject- Opt. Mathematics

Read and write all examples.

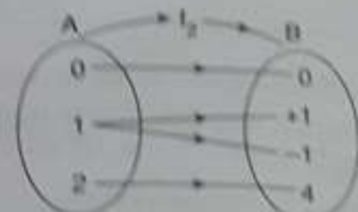
.4 Function

Let A and B be two non-empty sets, then, the relation from A to B that associa... ach element of set A with a unique element of set B is called a **function**. Consider the... xamples.

(a)

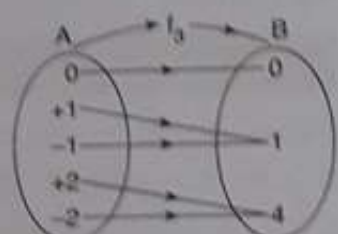
Each element of A is matched with an unique element of B. Therefore, relation f_1 is a function.

(b)



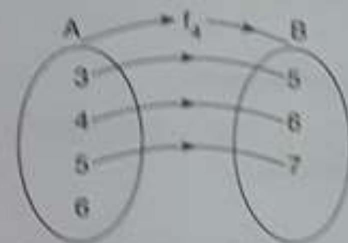
One of the elements in A is matched with two elements of B. Therefore, relation f_2 is not a function.

(c)



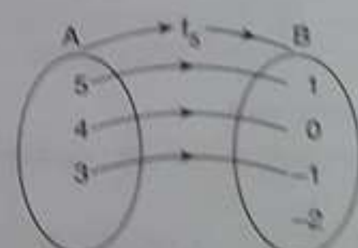
Each element of A is matched with one element of B. Therefore, relation f_3 is a function.

(d)



One element in A is not matched with any element in B. Therefore, relation f_4 is not a function.

(e) Each element of A is matched with one element of B. Therefore, relation f_5 is a function.



From these examples, we conclude that every function is a relation but every relatio... not a function. For a relation to be a function, the same first element should not appe... ce in two ordered pairs representing the relation. Therefore,

(i) $f_1 = \{(1, 2), (2, 3), (3, 4)\}$ is a function because no two ordered pairs have the same first element.

(ii) $f_2 = \{(1, 2), (1, 3), (3, 4)\}$ is not a function, because two ordered pairs (1, 2) and (1, 3) have the same first element 1.

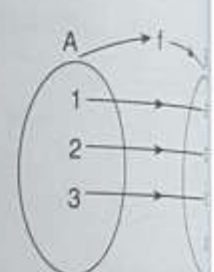
2. *Find the domain, co-domain and range of the function if $f: A \rightarrow B$ where $A = \{-1, 0, 1\}$ and $B = \{0, 1, 2\}$ is and defined as in the figure*

Solution:
Here, Domain of $f = A = \{-1, 0, 1\}$
Co-domain of $f = B = \{0, 1, 2\}$
and Range of $f = Y = \{0, 1\}$

3. *A function f is defined from set A to set B by the rule $f = \{(x, y) / y = 2x\}$ and given that $A = \{-1, 2, 4\}$. Find the range of f.*

Solution: $f = \{(x, y)/y = 2x\}$ is a given function, where $x \in A$ and $y \in B$, and function rule is $y = 2x$.
When $x = -1, y = 2x \Rightarrow y = -2$
When $x = 2, y = 2x \Rightarrow y = 4$
When $x = 4, y = 2x \Rightarrow y = 8$.
Hence, range of $f = \{-2, 4, 8\}$

4. *A function $f: A \rightarrow B$ is defined in the figure.*
Find the (a) domain (b) co-domain (c) range
(d) images of 1, 2, 3 and
(e) pre-images of a, b, c, d.



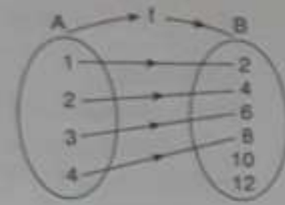
Solution:
(a) Domain of $f = \{1, 2, 3\}$
(b) Range of $f = \{a, b, c\}$
(c) Co-domain of $f = \{a, b, c, d\}$
(d) Image of 1 is a, 2 is b and 3 is c.
(e) Pre-image of a is 1, b is 2 and c is 3.
d has no pre-image.

5. *If $f(x) = 3x^2 + 2$ be a function, find $f(2)$ and $f(-3)$.*

Solution: Here, $f(x) = 3x^2 + 2$
then, $f(2) = 3.2^2 + 2 = 3.4 + 2 = 12 + 2 = 14$
and $f(-3) = 3(-3)^2 + 2 = 3.9 + 2 = 27 + 2 = 29$

2.4.1 Domain, Range and Co-domain of a Function

Let A = {1, 2, 3, 4} and B = {2, 4, 6, 8, 10, 12} be two sets and a function f be defined from A → B as f = {(1, 2), (2, 4), (3, 6), (4, 8)}. We can represent this function by an arrow diagram as in the figure.



Here, A = {1, 2, 3, 4} is called the **domain of f.**

B = {2, 4, 6, 8, 10, 12} is called the **co-domain of f.**

Y = {2, 4, 6, 8} is called the **range of f.**

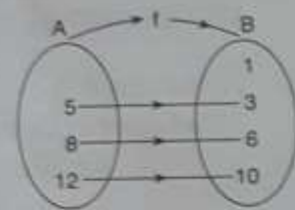
Note that Y ⊂ B.

That is, **the range of a function is the subset of its co-domain.**

Moreover, A = {1, 2, 3, 4} is the set of first elements of the ordered pairs of f and Y = {2, 4, 6, 8} is the set of the second elements of the ordered pairs of f.

2.4.2 Image and Pre-Image of f

Consider the function f: A → B.



Here, the function associates 5 of A to 3 of B. We say that 3 is the image of 5 and 5 is the pre-image of 3. Similarly,

- 6 is the image of 8 and 8 is the pre-image of 6.
- 10 is the image of 2 and 12 is the pre-image of 10.
- The element 1 of B has no pre-image.

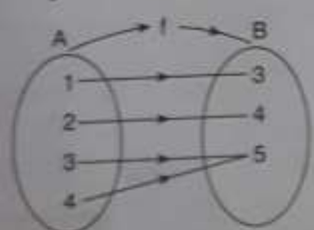
Worked Out Examples

1. *Draw arrow diagrams for each of the relations f and g and state clearly if the relation represents a function or not:*

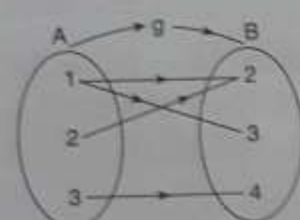
   f = {(1, 3), (2, 4), (3, 5), (4, 5)}

   g = {(1, 2), (1, 3), (2, 2), (3, 4)}

Solution: Representing the given relation in arrow diagrams, we get



f is a function, because each element of A is uniquely paired with an element of B.



g is not a function, because two elements 1 and 2 of A have been paired with one element 2 of B.

The End.