

Assignment-1

Q:1 If $A = \{x \mid x^2 - 5x + 4 = 0\}$

$$B = \{x \mid x^2 - 13x + 36 = 0\}$$

Find $A \cap B$, $A \cup B$, $A \times B$, $A \oplus B$, $A \setminus B$, $B \setminus A$.

Q:2 Using Venn Diagram show that

(i) $(A \cup B)' = A' \cap B'$

(ii) $(A \cap B)' = A' \cup B'$.

Q:3- Let $A = \{-1, 0, 1\}$, $B = \{0, 1\}$ then find $A \times B$.

also find $R = \{(x, y) \in A \times B \mid y = x^2\}$

also Domain & Range of R .

4Q:- $f: \mathbb{R} \rightarrow \mathbb{R}$

$$f(x) = x + 1$$

Check whether f is one-one & onto?

5Q:- $f: \{1, 2, 3, 4, 5\} \rightarrow \{3, 6, 11, 18, 27\}$

$$f(x) = x^2 + 2$$

Check whether f is bijective?

6Q:- Draw the graph of $f(x) = x^2$, $f(x) = x$, $f(x) = |x|$, $f(x) = x^3$.

Here, $f: \mathbb{R} \rightarrow \mathbb{R}$

7Q:- $|A| = 8$ & $|B| = 7$

Find $|A \times B|$, $|B \times A|$, $|P(A)|$, $|P(B)|$, $|P(A \times B)|$.

8Q:- Write Roaster form of the set.

$$A = \{x \mid x \in \mathbb{N}, x^2 - 16 = 0\}$$

$$B = \{x \mid x \text{ is a letter in the word of your first name}\}$$

$$C = \{x \mid x^2 - 6x = -9\}$$

Q9:- Draw Venn Diagram of $A \cap B \cap C$, $A \cup B \cup C$, A' , $(A \cap B \cap C)'$.

Q10:- Write three real-life application of sets.