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GRADE 11TH MATHS
CHAPTER 2

Relation And Function

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CLASS XI RELATIONS AND FUNCTIONS

- A and B are two sets given in such a way that $A \times B$ contains 6 elements. If three elements of $A \times B$ be $(1,3), (2,5)$ and $(3,3)$, find its remaining elements.
- If $A = \{x: x^2 - 5x + 6 = 0, x \in \mathbb{N}\}$, $B = \{x: 0 \leq x < 2, x \in \mathbb{W}\}$ and $C = \{x: x < 3, x \in \mathbb{N}\}$, then verify that:
 - $A \times (B \cup C) = (A \times B) \cup (A \times C)$
 - $A \times (B \cap C) = (A \times B) \cap (A \times C)$
 - $(A - B) \times C = (A \times C) - (B \times C)$
 - $(A \cap B) \times C = (A \times C) \cap (B \times C)$
- Let $A = \{2, 3, 5, 7\}$ and $B = \{3, 5, 9, 13, 15\}$. Let $f = \{(x, y) : x \in A, y \in B \text{ and } y = 2x - 1\}$. Write f in the roster form. Show that f is a function from A to B . Find the domain and range of f .
- Let $R = \{(x, y) : x, y \in \mathbb{Z}, y = 2x - 4\}$. If $(a, -2)$ and $(4, b^2)$ belongs to R , find the values of a and b .
- Let A be the set of first ten natural numbers and let R be a relation on A defined by $(x, y) \in R \Leftrightarrow x + 2y = 10$ i.e. $R = \{(x, y) : x \in A \text{ and } y \in B \text{ and } x + 2y = 10\}$. Express R as sets of ordered pairs.
- A relation R is defined on the set Z of integers as follows: $(x, y) \in R \Leftrightarrow x^2 + y^2 = 25$. Express R as the set of ordered pairs.
- If $f(x) = x^2 - 3x + 1$, find $x \in R$ such that $f(2x) = f(x)$.
- If $f: R \rightarrow R$ is defined by $f(x) = \frac{x}{x^2 + 1}$, find $f(f(2))$.
- Find the domain and the range of the following functions:
 - $f(x) = \frac{1}{x-3}$
 - $f(x) = \frac{1}{1-x^2}$
 - $f(x) = \sqrt{(x-1)(3-x)}$
 - $f(x) = \frac{x-2}{3-x}$