

National Institute of Open Schooling  
Senior Secondary Course : Mathematics  
Lesson 2: Relations and Functions-I  
Worksheet -2

1.	Write a relation R ‘is capital of’ from set A to set B, where set A having five capitals and set B having five states of India.
2.	Let $A = \{1, 2, 3\}$ and $B = \{a, b\}$ , Find Cartesian product of $A \times B$ and $B \times A$ , and verify $A \times B = B \times A$
3.	R be a relation from N to N defined by $R = \{(x, y) : 2x + y = 10, x, y \in N\}$ Find (i) R in the roster form (ii) Domain and Range of R
4.	For the function $F(x) = y = 3x + 2$ , Find the range of the function when domain = $\{-2, 1, 3, 2\}$
5.	Find the domain of the functions: (i) $y = \frac{1}{(x-5)(x-7)}$ for $x \in R$ (ii) $y = \frac{1}{2x-3}$ for $x \in R$
6	Let $A = \{1, 2, 3, 4, 5\}$ . R be the relation on A defined by : $\{(a, b) : a, b \in A, a \text{ divided } b\}$ i. Write relation R in roster form ii. Represent R through arrow diagram iii. Find domain and range of R
7	Let $f(x) = 3x + 2$ and $g(x) = 2x - 1$ be the two real functions. Find out the functions: (i) $f + g(x)$ (ii) $f - g(x)$
8	Given that $A = \{1, 2, 3\}$ , $B = \{3, 4\}$ and $C = \{4, 5\}$ Verify that (i) $A \times (B \cap C) = (A \times B) \cap (A \times C)$ (ii) $A \times (B \cup C) = (A \times B) \cup (A \times C)$
9	If $f(x) = x + 5, 0 \leq x \leq 6$ , then find the range of the function and represent it through arrow diagram.
10	Cite suitable examples of odd functions and even functions. Draw a graph of any odd function and even function, and write your observations from the graph.

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