

Chapter:-2

Relations & Functions

- Q.1 Find a and b if
- a) $(a+1, b-2) = (3,1)$ b) $\left(\frac{a}{3} + 1, b - \frac{2}{3}\right) = \left(\frac{5}{3}, \frac{1}{3}\right)$
- c) $(2a, a+b) = (6,2)$ d) $(a+b, 3b-2) = (7, -5)$
- Q.2 If the ordered pair $(x-2, 2y+1)$ and $(y-1, x+1)$ are equal, find x the value of a and b.
- Q.3 If $P = \{7,8\}$ and $Q = \{5,4,2\}$ find $P \times Q$ and $Q \times P$.
- Q.4 If A is set such that $n(A) = 3$ and $B = [3,4,5]$ then what is the number of elements in $A \times B$?
- Q.5 If $S = \{a, b\}$ and $T = \{x, y, z\}$ find $S \times T = n(T \times S)$.
Is $S \times T = T \times S$? Is $n(S \times T) = n(T \times S)$?
- Q.6 If $x \in \{2,3,5\}$ and $y \in \{2,4,6\}$ from the set of all ordered pairs (x,y) such that $x < y$.
- Q.7 If $x \in \{-2,3,4,5\}$ and $y \in \{0,3,6\}$ from the set of all ordered pairs (x,y) such that $x + y = 5$.
- Q.8 If $x \in \{2,3,4\}$ and $y \in \{4,6,9,10\}$ from the set of all ordered pairs (x,y) such x is factor of y.
- Q.9 Let $A = \{1,2,3\}$, $B = \{3,4\}$ and $C = \{4, 5, 6\}$ find
a) $A \times (B \cap C)$ b) $(A \times B) \cap (A \times C)$ c) $A \times (B \cup C)$ d) $(A \times B) \cup (A \times C)$
- Q.10 Let $A = \{1,2\}$ $B = \{1,2,3,4\}$ $C = \{5, 6\}$ and $D = \{5,6,7,8\}$
Verify that
1. $A \times (B \cap C) = (A \times B) \cap (A \times C)$
2. $A \times C$ is a subset of $B \times D$.
- Q.11 If A and B are two sets such that $n(A)=2$ and $n(B)=3$, find the number of relation from
a) A to B b) B to A c) A to A
- Q.12 Let $A = \{1,2\}$ and $B = \{3,4\}$ find
a) $A \times B$ b) number of relation from A and B
- Q.13 Let $A = \{1,2\}$ and $B = \{x,y,z\}$ find the number of relation from
(1). A to A (2) A to B (3) B to B
- Q.14 Let $A = \{1,2,3,4\}$ and $B = \{x,y,z\}$. Let r be a relation from A to B defined by $R = \{(1,x), (1,z), (3, x), (4,y)\}$
a) Find the domain and range of R.
b) Represent R by an arrow diagram.
- Q.15 Let a relation $R = \{(1, -1), (2,0), (3,1), (4,2), (5,3)\}$ then
a) Write the domain and the range of R.
b) Write R in the builder form.
- Q.16 Let $A = \{2,4,6\}$, $B = \{4,6,18\}$ and R be the 'is a factor of' from A to B. Find R as a set of ordered pairs and represent it by an arrow diagram.
- Q.17 Given $A = \{0,1,2,3\}$ and relation R defined on set A as
 $R = \{(x,y) : x, y \in A, x = y\}$ then
a) List the elements of R. b) List the domain of R c) List the range of R.