DPP

DAILY PRACTICE PROBLEMS

Class : XIth
Date :

Solutions

Subject : MATHS
DPP No. :7

Topic :-SETS

121 **(d)**

Clearly, $S \subset R$

$\therefore S \cup R = R$ and $S \cap R = S$

$\Rightarrow (S \cap R) - (S \cap R) =$ Set of rectangles which are not squares

122 **(b)**

Clearly, the relation is symmetric but it is neither reflexive nor transitive

123 **(d)**

Since, power set is a set of all possible subsets of a set.

$\therefore \quad P(A) = \{\phi, \{x\}, \{y\}, \{x, y\}\}$

124 **(b)**

We have,

$N = 10{,}000, n(A) = 40\%$ of $10{,}000 = 4000$,

$n(B) = 2000, n(C) = 1000, n(A \cap B) = 500$,

$n(B \cap C) = 300, n(C \cap A) = 400, n(A \cap B \cap C) = 200$

Now,

Required number of families $=$

$n(A \cap \overline{B} \cap \overline{C}) = n(A \cap (B \cup C)')$

$= n(A) - n(A \cap (B \cup C))$

$= n(A) - n((A \cap B) \cup (A \cap C))$

$= n(A) - \{n(A \cap B) + n(A \cap C) - n(A \cap B \cap C)\}$

$= 4000 - (500 + 400 - 200) = 3300$

126 **(b)**

$A \cap \phi = \phi$ is true.

128 **(c)**

$A \cap B = \{2, 4\}$

$\{A \cap B\} \subseteq \{1, 2, 4\}, \{3, 2, 4\}, \{6, 2, 4\}, \{1, 3, 2, 4\}$,

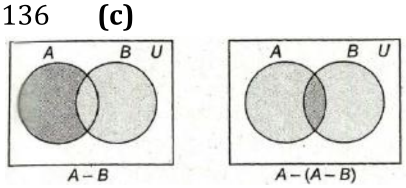
$\{1, 6, 2, 4\}, \{6, 3, 2, 4\}, \{2, 4\}, \{1, 3, 6, 2, 4\} \subseteq A \cup B$

$\Rightarrow \quad n(C) = 8$

129 **(a)**

We have,

$$p = \frac{7n^2 + 3n + 3}{n} \Rightarrow p = 7n + 3 + \frac{3}{n}$$

It is given that $n \in N$ and p is prime. Therefore, $n = 1$
$\therefore n(A) = 1$
130 **(d)**
$(Y \times A) = \{(1, 1), (1, 2), (2, 1), (2, 2),$
$(3, 1), (3, 2), (4, 1), (4, 2), (5, 1), (5, 2)\}$
And$(Y \times B) = \{(1, 3), (1, 4), (1, 5), (2, 3),$
$(2, 4), (2, 5), (3, 3), (3, 4), (3, 5), (4, 3),$
$(4, 4), (4, 5), (5, 3), (5, 4), (5, 5)\}$
$\therefore (Y \times A) \cap (Y \times B) = \phi$
131 **(b)**
Given, $n(A) = 4, \quad n(B) = 5$ and $\quad n(A \cap B) = 3$
$\therefore n[(A \times B) \cap (B \times A)] = 3^2 = 9$
132 **(c)**
$U = \{x{:}x^5 + 6x^4 + 11x^3 - 6x^2 = 0\} = \{0, 1, 2, 3\}$
$A = \{x{:}x^2 - 5x + 6 = 0\} = \{2, 3\}$
And $\quad B = \{x{:}x^2 - 3x + 2 = 0\} = \{2, 1\}$
$\therefore \quad (A \cap B)' = U - (A \cap B)$
$= \{0, 1, 2, 3\} - \{2\} = \{0, 1, 3\}$
133 **(c)**
We have,
$R = \{(1,3),(1,5),(2,3),(2,5),(3,5),(4,5)\}$
$\Rightarrow R^{-1} = \{(3,1),(5,1),(3,2),(5,2),(5,3),(5,4)\}$
Hence, $R\ o\ R^{-1} = \{(3,3),(3,5),(5,3),(5,5)\}$
134 **(b)**
Let $(a,b) \in R$. Then,
a and b are born in different months $\Rightarrow (b,a) \in R$
So, R is symmetric
Clearly, R is neither reflexive nor transitive
136 **(c)**


From the venn diagram
$A - (A - B) = A \cap B$
137 **(b)**
Required number of subsets is equal to the number of subsets containing 2 and any number of elements from the remaining elements 1 and 4
So, required number of elements $= 2^2 = 4$
140 **(b)**
Clearly, 2 is a factor of 6 but 6 is not a factor of 2. So, the relation 'is factor of' is not symmetric. However, it is reflexive and transitive

ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	D	B	D	B	B	B	D	C	A	D
Q.	11	12	13	14	15	16	17	18	19	20
A.	B	C	C	B	B	C	B	B	A	B