

Question :1.

Let,

$$A = \{4, 9, 14\}$$

$$B = \{8, 14\}$$

$$C = \{9, 14\}$$

$$D = \{2, 8, 14\}$$

a) $A \cap B \cap C \cap D$

$$= \{4, 9, 14\} \cap \{8, 14\} \cap \{9, 14\} \cap \{2, 8, 14\}$$

$$= \{14\} \quad (\text{Ans})$$

b) $(A \times B) = \{(4, 8), (4, 14), (9, 8), (9, 14), (14, 8), (14, 14)\}$

$$(C \times D) = \{(9, 2), (9, 8), (9, 14), (14, 2), (14, 8), (14, 14)\}$$

$$(A \times B) \cap (C \times D) = \{(9, 8), (9, 14), (14, 14)\}, (14, 8)\}$$

(Ans)

p	q	r	$(p \vee q)$	$(p \vee r)$	$(\neg p \vee q) \wedge (p \vee r)$	$\neg p \vee \neg q$	$((\neg p \vee q) \wedge (p \vee r)) \wedge (\neg p \vee \neg q)$
T	T	T	T	T	T	F	F
T	T	F	T	T	T	F	F
T	F	T	F	T	F	T	F
T	F	F	F	T	F	T	F
F	T	T	T	F	F	T	F
F	T	F	T	T	T	T	T
F	F	T	T	F	F	T	F
F	F	F	T	T	T	T	T