I- Answer by ***true*** or ***false*** with ***justification***.

No.	Statement	T/F	Justification
1-	The favorite teachers in your school form a set.		
2-	The classes in your school form a set.		
3-	$a = \{a\}$		
4-	$\phi = \{0\}$		
5-	$\left.\begin{array}{l} If\ A = \{x \mid 3x = 9\ \&\ x \in \Re\} \\ and\ B = \{x \mid x^2 = 9\ \&\ x \in \Re\} \end{array}\right\} then, A = B.$		
6-	$\phi \subset \{a,b\}$		
7-	$If\ J = \{i,\{p,n\},r\}, then\ Card\left(p(J)\right) = 2^4.$		
8-	$If\ N = \{a,\{b,c\},d\}, then \{b,c\} \subset N.$		

II- Choose with justification the only correct answer:

No.	Question	Response		
		A	B	C
1.	If A and B are two subsets of a set E such that $A \cap B = \{a\}$ where Card(A)=2, Card(B)=3 and $\overline{A} = \{2,3,b\}$ then B =	$B \in \{a,2\}$	$B = \{2,3,b\}$	$B = \{a,3,b\}$
2.	If A and B are two subsets of a set E such that $A \subset B$ then $(A \cup B) \cap (\overline{A} \cup E) =$	B	A	E
3.	The set of solutions *I* of the inequality $-x + 7 < -x$ is:	$\Re$	0	ϕ
4.	If $E = \{x \mid x \in Q \text{ and } 3x = 2\}$ then E=	$\left\{\frac{2}{3}\right\}$	ϕ	$\frac{2}{3}$

III- Consider the following sets: $E=\{1,2,3,4,5,7,9\}, A=\{1,3,5,9\}$ & $B=\{2,4,9\}$

a. Verify that A is a subset of E.

b. Find: $A\cap B; A\cup E$ & $\overline{\overline{A}}$.

c. Determine: $A\cup\overline{B}$ & $A\cap\overline{E}$.

d. Complete:

i. If $A\subset E$, then $A\cap E=.....$

ii. If $B\subset E$, then $B\cup E=.....$

iii. If $A\subset B$, then $\overline{B}.....\overline{A}$

iv. $A\cap A=A\cup A=.....$

v. $B\cup A.....E$

vi. $A.....B\cup A$

vii. $\overline{E}=$

viii. $B\cup\varnothing=.....$

ix. $A\cap\varnothing=.....$

IV- Consider the sets $A=\{x\mid x\in Z \;\&\; -3\le x\le 3\}$ and $B=\{1,2,3,6\}$.

a. Express set *A* in roster notation and set *B* in form of set builder notation.

b. Find $A\cap B$ and $A\cup B$.

V- Given the following sets:

$E=\{x\mid x \text{ is a digit}\}$.

$A=\{x\mid x\in N \text{ and } x \text{ is a divisor of } 8 \text{ different from } 1\}$.

$B=\{x\mid x\in Z \text{ and } x \text{ is a solution of the equation } (x-2)(x^2-5)=0\}$.

$C=\{x\mid x\in B \text{ and } x \text{ is an irrational number}\}$.

$D=\{2,3,5\}$.

1- Write E, A, B and C in extension.

2- Write D in comprehension.

3- Find the sets: $A\cap D, \overline{A\cap D}$ and $\overline{\overline{A}\cup D}$.

VI- Given the set: $E=\{x\mid x\in Z^+ \text{ and } x\le 12\}$, where A & B are two subsets of E such that:
$A=\{x\mid x \text{ is a multiple of } 3\}$ and $B=\{1,2,3,4,6,12\}$

1) Write E & A in extension. Script B in comprehension.

2) Find $A\cup B, \overline{A\cup B}, \overline{A}, \overline{B}$ and $\overline{A}\cap\overline{B}$.

Mastering problems		
Chapter	*Exercises*	*Pages*
CH-2: Sets	$2\xrightarrow{till}14,18,19$ & 20	$24\xrightarrow{till}28.$
	4,5 & 8	30 & 31
	11,12 & 13	32 & 33