

CHAPTER 5

SETS

More Questions for Practice

- Let S be the set of letters in the word 'CLEVER'.
 - Write S in roster form
 - Find $n(S)$.
- Find $n(P)$, where
$$P = \{x : x \text{ is a positive even integer less than } 10\}.$$
- Find $n(Q)$, where
$$Q = \{x : x \text{ is a positive integer such that } 10 \leq x < 18\}.$$
- Given below are two sets P and Q :
$$P = \{x : x \text{ is a non-negative integer less than } 1\}.$$
$$Q = \{0\}$$
Are P and Q equal sets? Why?
- State whether each of the following statements is true (T) or false (F). If it is false, explain why.
 - $\{0\} = \phi$
 - $\phi = \{ \}$
 - $\{\phi\}$ is an empty set
 - $n(\phi) = 0${Here, ϕ denotes empty set.}
- It is given that
$$U = \{x : x \text{ is an integer between } 1 \text{ and } 10 \text{ inclusive.}\}$$
$$A = \{x : x \text{ is a perfect square.}\}$$
 - List all the elements of U and A in set notation.
 - Describe the set A' in words.
 - Find $n(U)$, $n(A)$ and $n(A')$.
 - Is $n(A) + n(A') = n(U)$? Why or why not?
- Given below are two sets A and B :
$$A = \{1, 2, 3, 4, 5\}, \quad B = \{1, 2, 3\}$$
Which of the following is true?
 - $A = B$
 - $A \subseteq B$
 - $B \subset A$
 - $B \subseteq A$
- It is given that:
$$H = \{x : x \text{ is a rational number.}\}$$
and $K = \{x : x \text{ is an integer.}\}$ Is $K \subset H$ or $H \subset K$? Explain.

ANSWERS

1. (a) $S = \{C, L, E, V, R\}$ (b) $n(S) = 5$
2. $n(P) = 4$
3. $n(Q) = 8$
4. $P = Q$, because P and Q consist of one element each and that element is also same, *i.e.*, 0.
5. (a) F; $\{0\}$ is not empty set. (b) T
(c) F; $\{\phi\}$ is not empty set, it has an element ϕ . (d) T
6. (i) $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$
 $A = \{1, 4, 9\}$
(ii) A' is the set of all non-perfect squares, less than 10.
(iii) $n(U) = 10$, $n(A) = 3$, $n(A') = 7$ (iv) Yes; as $3 + 7 = 10$
7. (c)
8. $K \subset H$, as every integer is a rational number.

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