Answer on Question #51645 – Math – Set Theory

(a) If A and B given below are two subsets of universal sets of natural number ranging from 2 to 16.

A = {6,7,8,9,10,11,12,13,15}

B = {2,4,6,8,10,12,14}

Find:

Complement of A i.e AC

A complement union B complement i.e AC ∪ BC

Solution

If A = {6,7,8,9,10,11,12,13,15} and universal set is U={2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16}, then Complement of A with respect to U is the set of elements in U but not in A:

$$A^C = \{2,3,4,5,6,7,8,9,10,11,12,13,14,15,16\} \setminus \{6,7,8,9,10,11,12,13,15\} = \{2,3,4,5,14,16\},$$

$$A^C = \{2,3,4,5,14,16\}$$

$$B^C = \{3,5,7,9,11,13,15\}$$

$$A^C \bigcup B^C = \{2,3,4,5,7,9,11,13,14,15,16\}$$

is A complement union B complement.

The union of two sets D and E is the set of elements which are in D, in E, or in both D and E.