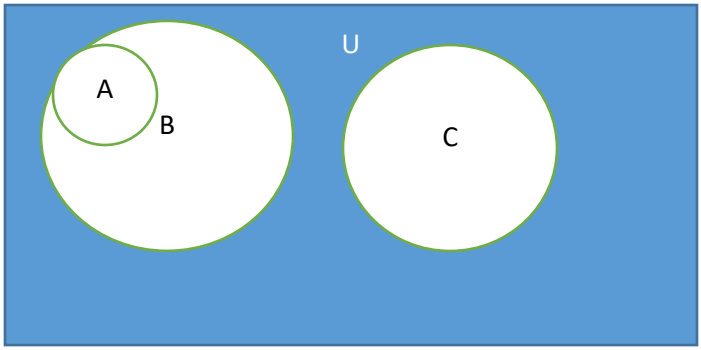
Answer on Question #74865 – Math – Discrete Mathematics

Question

Draw the venn diagram of sets A, B and C where A is contained in (subset equal to) B , A intersection B doesn't equal to phi (empty set) , B intersection C = phi (empty set) . What is the universal set you have chosen? Justify your choice of sets in the diagram?

Solution



The Venn diagram of sets A,B and C satisfies the following conditions:

1. $A \subseteq B$ (A is contained in B)
   In order for the set to be contained in another set in the Venn diagram, it is necessary to draw one in the other. This means that every element in set A is also contained in set B;
2. $A \cap B \neq \emptyset$
   Since the set A is contained in set B, this condition shows that the set A is nonempty, since the only case when the intersection of the set and its subset gives an empty set is when a subset is an empty set (phi);
3. $B \cap C = \emptyset$
   Set B and set C should be drawn without intersections

The universal set U is a set that includes sets A,B and C.

Example

U – the set of real numbers

B – the set of integer numbers divisible by 2 without residue

A – the set of integer numbers divisible by 4 without residue

C – the set of integer numbers divisible by 2 with a remainder of 1