

Activity – 1

Subject	MATHEMATICS
Class	XI
Chapter/Unit	SETS AND FUNCTIONS
Topic	SETS
Time	40 minutes
Nature of Activity	Individual

What will I learn? (Learning outcome)

To represent set operations using Venn diagrams.

Skills: - Visualizing, Creating, Accuracy, Precision, logical ability

What I have to do?

Cut and paste sets diagrammatically

What do I require?

Hardboard, white thick sheets of paper, pencils, colours, a pair of scissors , coloured paper, sketch pens, geometry box, glue stick,

What do I need to know?

Sets and its diagrammatic representation

➤ **Teacher's activity**

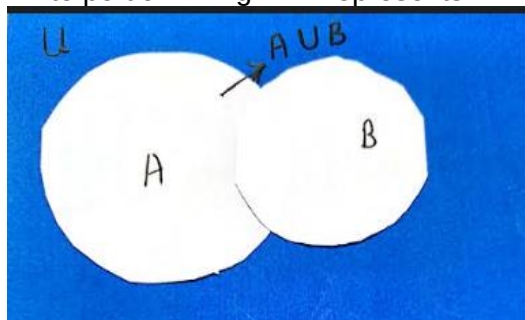
Teacher will discuss and explain sets and its operation and instruct them the steps to carry out the activity

How will I proceed?

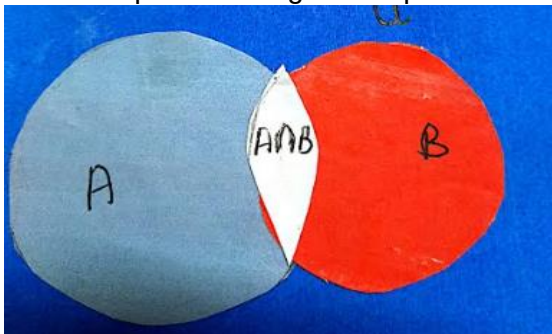
➤ **Students activity** Student will

- Cut rectangular strips from a sheet of paper and paste them on a hardboard.
- Cut 10 small and 10 big circles
- Write the symbol U in the left/right top corner of each rectangle.
- Paste circles A and B inside each of the rectangular strips and shade/colour different portions as shown in Fig. 1.1 to Fig. 1.8

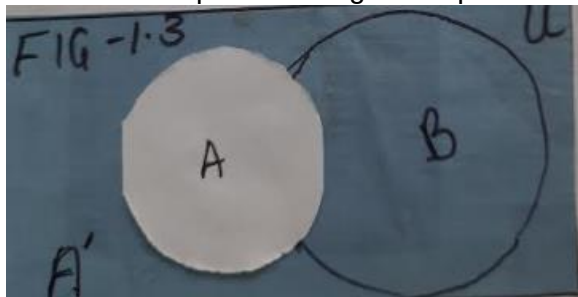
White portion in Fig. 1.1. represents $A \cup B$.



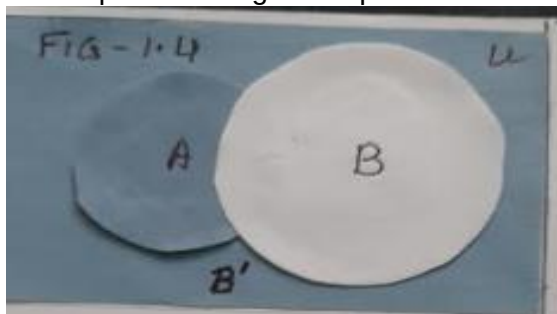
White portion in Fig. 1.2. represents $A \cap B$.



Dark coloured portion in Fig. 1.3 represents A'



Darker portion in Fig. 1.4 represents B'



Pink coloured region in Fig 1.5 $A' \cap B$



Fig 1.6 all white region $A' \cup B$

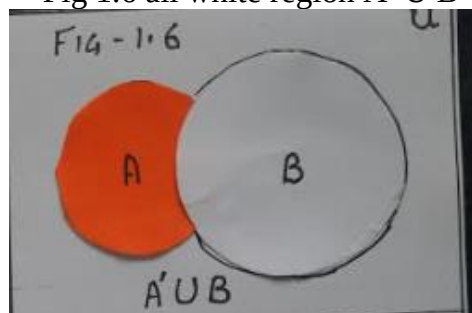


Fig. 1.7 shows $A \cap B = \phi$

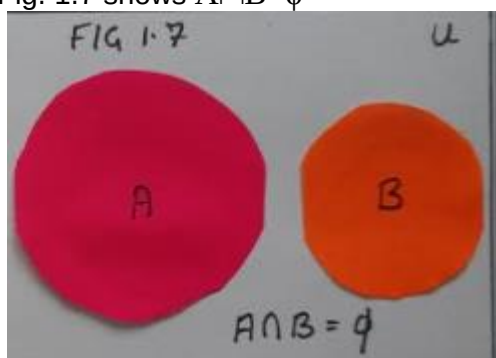
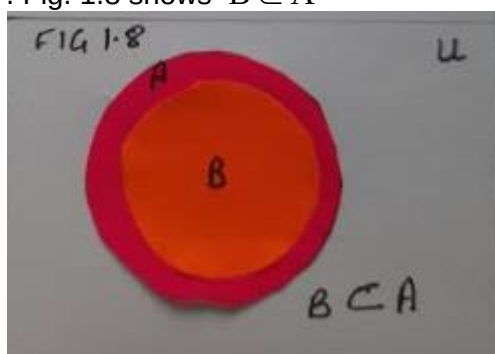


Fig. 1.8 shows $B \subset A$



What have I observed?

S. No.	.	
1	White portion in Fig. 1.1, represents	
2	White portion in Fig. 1.2, represents	
3	Dark portion in Fig. 1.3, represents	
4	Darker portion in Fig. 1.4, represents	
5	Coloured portion in Fig. 1.5, represents	
6	White portion in Fig. 1.6, represents	
7	Fig. 1.7, shows that $(A \cap B)$	
8	Fig. 1.8, represents B ----- A.	

What have I learnt?

Set theoretic representation of Venn diagrams are used in Logic and Mathematics.

Let me evaluate myself

Q1. Draw the Venn diagrams to illustrate the following relationship among sets E, M and U, where E is the set of students studying English in a school, M is the set of students studying Mathematics in the same school, U is the set of all students in that school. (i) All the students who study Mathematics study English, but some students who study English do not study Mathematics. (ii) There is no student who studies both Mathematics and English. (iii) Some of the students' study Mathematics but do not study English, some study English but do not study Mathematics, and some study both. (iv) Not all students study Mathematics, but every students studying English studies Mathematics

Q2. If A and B are two sets, then $A \cap (A \cup B)$ equals

- (a) A (b) B (c) ϕ (d) $A \cap B$

Q3 If $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$, $A = \{1, 2, 3, 5\}$, $B = \{2, 4, 6, 7\}$ and

$C = \{2, 3, 4, 8\}$. Then (i) $(B \cup C)'$ is _____. (ii) $(C - A)'$ is _____.

Q4. If A = Set of letters of the word 'DELHI' and B= the set of letters the words 'DOLL' find

- (i) $A \cup B$

Q5. If A = Set of letters of the word 'DELHI' and B= the set of letters the words 'DOLL'

find $A \cap B$
