

Activity 19

OBJECTIVE

To verify experimentally that the parallelograms on the same base and between same parallels are equal in area.

MATERIAL REQUIRED

A piece of plywood, two wooden strips, nails, elastic strings, graph paper.

METHOD OF CONSTRUCTION

1. Take a rectangular piece of plywood of convenient size and paste a graph paper on it.
2. Fix two horizontal wooden strips on it parallel to each other [see Fig. 1].

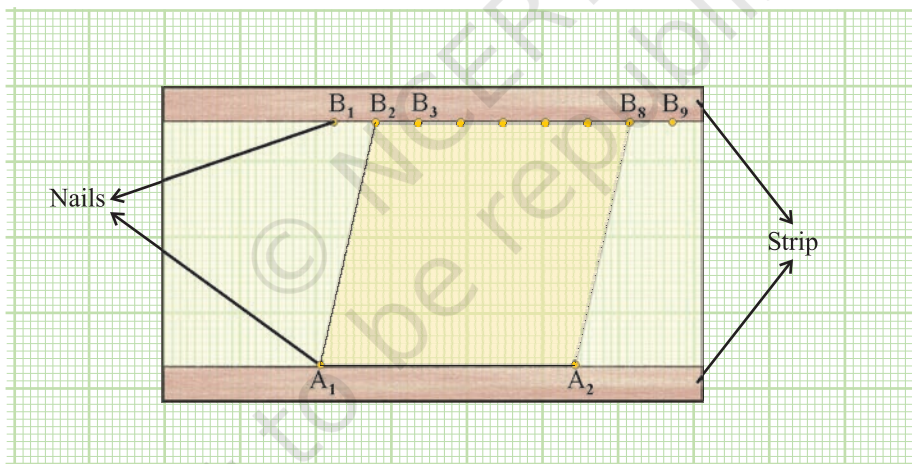


Fig. 1

3. Fix two nails A_1 and A_2 on one of the strips [see Fig. 1].
4. Fix nails at equal distances on the other strip as shown in the figure.

DEMONSTRATION

1. Put a string along A_1, A_2, B_8, B_2 which forms a parallelogram $A_1A_2B_8B_2$. By counting number of squares, find the area of this parallelogram.

2. Keeping same base A_1A_2 , make another parallelogram $A_1A_2B_3B_3$ and find the area of this parallelogram by counting the squares.
3. Area of parallelogram in Step 1 = Area of parallelogram in Step 2.

OBSERVATION

Number of squares in 1st parallelogram = -----.

Number of squares in 2nd parallelogram = -----.

Number of squares in 1st parallelogram = Number of squares in 2nd parallelogram.

Area of 1st parallelogram = ----- of 2nd parallelogram

APPLICATION

This result helps in solving various geometrical problems. It also helps in deriving the formula for the area of a parallelogram.

NOTE

In finding the area of a parallelogram, by counting squares, find the number of complete squares, half squares, more than half squares. Less than half squares may be ignored.