

Further, cut one triangle from the paper, and place it upon the other. From this superposition what conclusion do you draw as to the areas of the two triangles?

Repeat the same construction, measurement, and superposition with the following triangles:

Two whose sides are $1\frac{3}{4}$ and $2\frac{1}{4}$ inches, and included angle 30° .

Two whose sides are 30 and 110 millimetres, and included angle 78° .

Two whose sides are $1\frac{1}{2}$ and 2 inches, and included angle 135°

.

The result of our observations in all these cases is that if two triangles have two sides in each equal, and the angles included by these two sides equal, then the remaining sides are equal, and the angles opposite to equal sides are equal, and the triangles are equal in area. In other words two such triangles are the same triangle in different positions.

Another way of stating the fact is to say that if two sides and the included angle of a triangle are fixed, the remaining side and angles are fixed, and the area is fixed.

3. In the case of all the triangles in 1 and 2, lay off, with the bevel, three angles adjacent to one another, equal to the three angles of each triangle, in the way indicated in the figure. Determine the positions of the initial and final lines, LM and LK , with respect to one another.

