The result of our observations in all these cases is that **if two triangles have their bases equal, and angles adjacent to the bases equal, the remaining angles are equal, and the sides opposite to equal angles are equal, and the areas are equal.** In other words they are the same triangle in different positions.

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

6. The following fact, demonstrated in Chapter VI., may be of service in connection with the succeeding exercises:

The vertically opposite angles AEC and BED are equal; and also the vertically opposite angles AED and BEC.

Exercises.

In numerical exercises, such as the first twelve, the teacher should solve the triangles by the usual trigonometrical formulæ, that he may inform the class as to the closeness of their approximations reached by instrumental methods.

1. The sides of a triangle are 35, 52 and 63 millimetres. Construct the triangle; and with the protractor measure the angles to the nearest degree.

2. The sides of a triangle are 36, 48 and 60 millimetres. Construct the triangle; and with the protractor measure the angles to the nearest degree.

3. The sides of a triangle are 66, 90 and 31 millimetres. Construct the triangle; and measure the angles to the nearest degree.