NOTE 1. *On the Method of Superposition.*

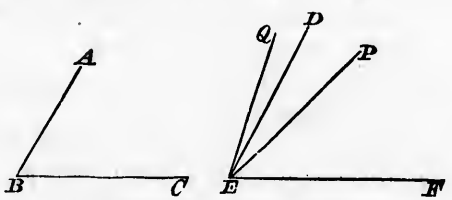
Two geometrical magnitudes are said, in accordance with AX. VIII. to be *equal*, when they can be so placed that the boundaries of the one coincide with the boundaries of the other.

Thus, two straight lines are equal, if they can be so placed that the points at their extremities coincide: and two angles are equal, if they can be so placed that their vertices coincide in position and their arms in direction: and two triangles are equal, if they can be so placed that their sides coincide in direction and magnitude.

In the application of the test of equality by this *Method of Superposition*, we assume that an angle or a triangle may be moved from one place, turned over, and put down in another place, without altering the relative positions of its boundaries.

We also assume that if one part of a straight line coincide with one part of another straight line, the other parts of the lines also coincide in direction; or, that straight lines, which coincide in two points, coincide when produced.

The method of Superposition enables us also to compare magnitudes of the same kind that are unequal. For example, suppose *ABC* and *DEF* to be two given angles.



Suppose the arm *BC* to be placed on the arm *EF*, and the vertex *B* on the vertex *E*.

Then, if the arm *BA* coincide in direction with the arm *ED*, the angle *ABC* is equal to *DEF*.

If *BA* fall between *ED* and *EF* in the direction *EP*, *ABC* is less than *DEF*.

If *BA* fall in the direction *EQ* so that *ED* is between *EQ* and *EF*, *ABC* is greater than *DEF*.