

To understand this Axiom it is necessary to become acquainted with the early propositions of Book I., that depend on the properties of parallel straight lines.

The Axioms were originally termed "*common notions*," as the first seven were applicable to the measures of numbers and solids, as well as to Geometrical measurement.

THE PROPOSITIONS.

1. Before entering on the Propositions, it is necessary to inquire what a proposition is, and into what parts it may be divided.

2. The term Proposition is derived from the Latin verb *PROFONERE*, to put forward, to propose; a Proposition, then, is some statement put forward to us, and this statement will require solution or demonstration by mathematical reasoning, founded on the truths implied or conveyed in the Definitions, Postulates, and Axioms.

3. If the Proposition require solution, it is called a *PROBLEM*, from a Greek word pronounced *PRO-BLEE-MA*, meaning something put forward or proposed; the Proposition, then, is a *PROBLEM* when it puts forward something to be done.

4. If, on the contrary, the Proposition conveys a statement or assertion requiring demonstration, it is called a *THEOREM*, from a Greek word pronounced *THE-O-REE-MA*, meaning a thing to be looked at, something for contemplation.

5. A *PROBLEM* requires you to do something, and then prove that what you have done is correct.

6. A *THEOREM* states, that if certain conditions are allowed or complied with, certain results will follow, and you have to shew that these results are true.

7. We may divide Problem and Theorem into six parts as follows; although differing slightly from the divisions adopted by Proclus, they may be more intelligible to beginners:—

