Common Notions Postulates

Let the following be postulated:

Postulate 1.
   To draw a straight line from any point to any point.

Postulate 2.
   To produce a finite straight line continuously in a straight line.

Postulate 3.
   To describe a circle with any center and radius.

Postulate 4.
   That all right angles equal one another.

Postulate 5.
   That, if a straight line falling on two straight lines makes the interior angles on the same side less than two right angles, the two straight lines, if produced indefinitely, meet on that side on which are the angles less than the two right angles.

Common notion 1.
   Things which equal the same thing also equal one another.

Common notion 2.

   If equals are added to equals, then the wholes are equal.

Common notion 3.
   If equals are subtracted from equals, then the remainders are equal.

Common notion 4.
   Things which coincide with one another equal one another.

Common notion 5.
   The whole is greater than the part.

What to include when you are explaining a theorem or axiom:
- Identify what sort of statement it is. Is it saying that something can be constructed, or that something exists, or that some relationship is true?
- Identify the hypotheses (givens, input). What do you assume is true or is given to you or is already constructed or existing?
- Identify the conclusion (to prove, to construct, output). What does the statement say has to exist or be the relationship when the givens are true?
- Sketch a diagram that shows the hypotheses and/or conclusion.

Propositions

Proposition 1.
To construct an equilateral triangle on a given finite straight line.

Proposition 2.
To place a straight line equal to a given straight line with one end at a given point.

Proposition 3.
To cut off from the greater of two given unequal straight lines a straight line equal to the less.

Proposition 4.
If two triangles have two sides equal to two sides respectively, and have the angles contained by the equal straight lines equal, then they also have the base equal to the base, the triangle equals the triangle, and the remaining angles equal the remaining angles respectively, namely those opposite the equal sides.

Proposition 5.
In isosceles triangles the angles at the base equal one another, and, if the equal straight lines are produced further, then the angles under the base equal one another.

Proposition 6.
If in a triangle two angles equal one another, then the sides opposite the equal angles also equal one another.

Proposition 7.
Given two straight lines constructed from the ends of a straight line and meeting in a point, there cannot be constructed from the ends of the same straight line, and on the same side of it, two other straight lines meeting in another point and equal to the former two respectively, namely each equal to that from the same end.

Proposition 8.
If two triangles have the two sides equal to two sides respectively, and also have the base equal to the base, then they also have the angles equal which are contained by the equal straight lines.

Proposition 9.
To bisect a given rectilinear angle.

Proposition 10.
To bisect a given finite straight line.

Proposition 11.
To draw a straight line at right angles to a given straight line from a given point on it.

Proposition 12.

To draw a straight line perpendicular to a given infinite straight line from a given point not on it.

Proposition 13.
If a straight line stands on a straight line, then it makes either two right angles or angles whose sum equals two right angles.

Proposition 14.
If with any straight line, and at a point on it, two straight lines not lying on the same side make the sum of the adjacent angles equal to two right angles, then the two straight lines are in a straight line with one another.