PARALLEL STRAIGHT LINES.

When a straight line cuts two other straight lines, if

(i.) A pair of alternate angles are equal; or

(ii.) A pair of corresponding angles are equal; or

(iii.) A pair of interior angles on the same side of the cutting line are together equal to two right angles;

then the two straight lines are parallel; and the converse.

Straight lines which are parallel to the same straight lines are parallel to one another.

TRIANGLES AND OTHER RECTILINEAR FIGURES.

The sum of the angles of a triangle is equal to two right angles.

If the sides of a convex polygon are produced in order, the sum of the angles so formed is equal to four right angles.

If two triangles have two sides of the one equal to two sides of the other, each to each, and also the angles contained by those sides equal, the triangles are congruent.

If two triangles have two angles of the one equal to two angles of the other, each to each, and also one side of the one equal to the corresponding side of the other, the triangles are congruent.

If two sides of a triangle are equal, the angles opposite to these are equal; and the converse.

If two triangles have the three sides of the one equal to the three sides of the other, each to each, the triangles are congruent.

If two right-angled triangles have their hypotenuses equal, and one side of the one equal to one side of the other, the triangles are congruent.

If two sides of a triangle are unequal, the greater side has the greater angle opposite to it; and the converse.

Of all the straight lines that can be drawn to a given straight line from a given point outside it, the perpendicular is the shortest.

The opposite sides and angles of a parallelogram are equal, each diagonal bisects the parallelogram, and the diagonals bisect one another.

If there are three or more parallel straight lines, and the intercepts made by them on any straight line that cuts them are equal, then the corresponding intercepts on any other straight line that cuts them are also equal.

AREAS.

Parallelograms on the same or equal bases and of the same altitude are equal in area.

Triangles on the same or equal bases and of the same altitude are equal in area.

Equal triangles on the same or equal bases are of the same altitude.

The proposition of Pythagoras—viz., the square on the hypotenuse of a right-angled triangle is equal to the sum of the squares on the other two sides; and conversely.

Illustrations and explanations of the geometrical theorems corresponding to the following algebraical identities:—

$$k(a + b + c + ..) = ka + kb + kc + ..$$
$$(a + b)^2 = a^2 + 2ab + b^2,$$
$$(a - b)^2 = a^2 - 2ab + b^2;$$
$$a^2 - b^2 = (a + b)(a - b).$$

LOCI.

The locus of a point which is equidistant from two fixed points is the perpendicular bisector of the straight line joining the two fixed points.

The locus of a point which is equidistant from two intersecting straight lines consists of the pair of straight lines which bisect the angles between the two given lines.

(13.) *Latin.*—Candidates will be expected to show such a knowledge of the language and of its vocabulary and grammar as may be gained by the study of Cæsar's Gallic War, Book II, but candidates will not be expected to have read that particular book, nor will the passages for translation necessarily be taken from it. The candidate should be able, with the aid of a vocabulary of unusual words not found in the standard book named, to render into English easy passages of unprepared translation, and to answer questions in grammar thereon; also to answer in Latin easy questions expressed in Latin arising out of the same passages, and to render into Latin easy sentences or passages selected expressly in imitation of the language and subject-matter of one of the passages, or to write in Latin a free composition of a simple character on a familiar subject.