(4) To describe a square that shall be equal to a given rectilineal figure.

(5) The angle at the centre of a circle, is double of the angle at the circumference upon the same part of the circumference.

(6) Upon a given straight line, to describe a segment of a circle, which shall contain an angle equal to a given rectilineal angle.

(7) To inscribe an equilateral and equiangular pentagon in a given circle.

(8) Similar triangles are to one another in the duplicate ratio of their homologous sides.

(9) To describe a rectilineal figure which shall be similar to one, and equal to another rectilineal figure.

   (*a*) Given the base and vertical angle, to find the triangle whose area is a maximum.

   (*b*) If the opposite sides *A B*, *C D*, of a quadrilateral be produced to meet in the point *E*, and *F* and *G* be the middle points of the diagonals *A C*, *B D*, then will the triangle *E F G* be one-fourth of the quadrilateral *A B C D*.

   (*c*) Through two given points to describe a circle, intersecting a given circle so that the chord of intersection shall be of a given length.

XIII.—TRIGONOMETRY.

(1) Given that sec. A = 1.5, find sin. A.

(2) Shew that cos. (A — B) = cos. A cos. B + sin. A sin. B.

(3) Two sides of a triangular field, including an angle of 35° 10′, are 12 and 15 chains in length respectively. Find the number of acres in the field, 1 acre = 10 square chains.