Define and illustrate by figures supplementary angles, complementary angles, rhombus, diagonal, sector of a circle.

2–3 Prove that the side of a regular hexagon is equal to the radius of the circumscribed circle.

4–5 Prove that two triangles which are mutually equiangular are similar.

6 Through a point outside a circle construct a line tangent to the circle. Give proof.

7–8 Two triangles have an angle in each equal, the bounding sides being 8 feet and 12 feet in one case, 6 feet and 20 feet in the other; the area of the smaller triangle is 27 square feet; find the area of the larger.

9 The bisector of the vertical angle of a triangle divides the base into segments of 2 feet 3 inches and 3 feet; one of the other sides of the triangle is 18 feet; find the third side.

10 Prove that the bisectors of the three angles of a triangle meet at a point.

11–12 Construct a rectangle having a given base and equivalent to a given square.

13–14 Through a given point construct a line so that the angles which it makes with two given lines shall be equal.

15 Determine the locus of the middle points of all the chords drawn from a fixed point in the circumference of a circle.