1958

1. Construct a triangle whose sides measure 5 cm., 6 cm., and 7 cm. Find the area of the triangle.

2. (*a*) Draw a diagram to show that the square on a line is equal to four times the square on half the line.

(*b*) ABC is an equilateral triangle and D is the middle point of BC. Show that $AD^2 = 3BD^2$.

3. (*a*) What is the locus of the centres of all circles which pass through two fixed points?

(*b*) Sketch the locus of all points whose distance from a given straight line 2 in. long is 1 inch.

4. Describe a circle passing through the three vertices of (*a*) a right-angled triangle; (*b*) an equilateral triangle. Explain the construction.

5. Prove that the three angles of a triangle are together equal to two right angles.

Show that the angles of a 5-sided figure are together equal to six right angles.

6. Gold (T) is hidden in a rectangular field, ABCD, in which AB is shorter than BC. The angle ATB = 90°, and the gold is three times as far from AD as from BC. Show by a clear, accurate drawing the position of the gold.

7. Prove that equal chords are equidistant from the centre of a circle.

Construct a circle in which a chord 2 in. long is $1\frac{1}{2}$ in. from the centre of the circle.

8. Construct a quadrilateral ABCD so that AB = 5 in., BC = 3 in., CD = 2 in., and DA = DB = 4 inches.

Construct a triangle equal in area to the quadrilateral.