1956

1. Draw a triangle ABC in which AB=4″, BC=4·2″, and AC=2·6″. Draw AM perpendicular to BC. Measure AM. Which is the smallest angle in the triangle ABC?

2. Draw a figure to show that
$$(a+b+c)^2 = (a+b+c)a + (a+b+c)b + (a+b+c)c.$$

3. (i) How many axes of symmetry has an isosceles triangle?

(ii) What is the locus of a point 1·5″ from a given line?

(iii) Draw an isosceles triangle having each base angle = 45° and its height being 1·5″. Explain the construction.

4. When a straight line meets two other parallel straight lines, what do you know about the interior angles on the same side of the line? If both pairs of interior angles are bisected, show that the bisectors form a rectangle.

5. Draw a right-angle triangle with its hypotenuse 5″ and one side = 3″. What is the area of the triangle?

6. Show how to draw (i) a circle passing through three fixed points, and (ii) a circle in which a chord measuring 4″ is $1\frac{1}{2}$″ from the centre.

7. "If the line which bisects the vertical angle of a triangle also bisects the base, the triangle must be isosceles."

Prove this statement. (You may find it useful to produce the bisector to twice its own length.)

8. What is the size of each angle in an equilateral triangle?

Show how to divide a right angle into three equal parts, using only a ruler and compass.