1959

1. Construct angles of (*a*) 150° ; (*b*) $22\frac{1}{2}°$, without using a protractor.

Two of the angles of a triangle are 150° and $22\frac{1}{2}°$, respectively. What is the size of the third angle ?

2. A parallelogram has sides 3″ and 4″, and contains an angle of 30°. Make a triangle having one side $3\frac{1}{2}$″ equal in area to the parallelogram. What is the area ?

3. (*a*) Show that the diameter is the longest chord which can be placed in a circle.

(*b*) Draw a circle in which a chord 6 cms. long is 3 cms. from the centre.

4. The vertical angle of an isosceles triangle is 70°. How many degrees in each of the base angles?

ABC is a triangle with AB=AC. BA is produced to D so that AD=AB. Show that $\angle DCB$ is a right angle. Draw a circle through the points D, B, C.

5. (*a*) A and B are two fixed points. P is a point which moves so as to be always equidistant from A and B.

What is the locus of P?

(*b*) AB is the base of the triangle ABC. The base remains fixed but the apex C moves so that the area of the triangle remains constant. What is the locus of C?

6. How would you inscribe a square in a right-angled triangle?

Or,

How would you inscribe a circle in a triangle?

7. One of the angles of a triangle is double each of the other two. The equal angles are bisected. Calculate the angle at which the bisectors meet.

The exterior angles adjacent to the equal angles are also bisected. Calculate the angle at which these bisectors meet.

8. Draw the triangle whose sides are 3″, 4″, 5″. What kind of a triangle is it?

Is it possible to draw the triangle 2″, 3″, 6″? Give a reason for your answer.

If a triangle has two of its sides 3″ and 4″, what is the *shortest* distance the third side can have? Why do you think so?