

1. Construct angles of 30° , 45° , 60° , 90° , 120° , using a ruler and compass only.

[All construction lines should be clearly shown.]

2. Construct a triangle whose sides are 4", 3", 2". Measure the angles of the triangle as accurately as you can.

3. Show, by means of a geometrical construction, how to find the mid-point, C, of a given straight line AB. [No proof required.]

D is a point on AB produced. Show that $AD + DB = 2CD$.

4. ABC is a triangle. A straight line PQR meets AB at P, AC at Q, and BC produced at R.

If $\angle APQ = \angle AQP = 65^\circ$, and $\angle QRC = 30^\circ$, calculate the magnitude of each angle of the triangle ABC.

5. Draw a triangle ABC in which the angle C is obtuse. X, Y are points on the side AB such that

$$\angle XCA = \angle YCB = 90^\circ.$$

Show :

(i) that $\angle YCA = \angle XCB$.

(ii) that $\angle ACB + \angle XCY = 2$ right angles.

6. Show that the opposite sides of a parallelogram are equal.

Show also that the diagonals bisect each other.

7. AB is a fixed straight line 5" long. Construct the locus of a point C which moves so that $\angle ACB = 90^\circ$.

When C is three inches distant from the point B, find its distance from the point A (i) by measurement; (ii) by calculation.

8. M is the mid-point of a chord AB in a circle whose centre is O. Show that OM is perpendicular to AB.

If AO produced meets the circle at C, show that CB is parallel to OM.