

23. Two similar $\triangle$ s ABC , ABC' have a common vertex A , and the $\triangle ABC'$ rotates in the common plane about the point A . Show that the locus of the point of intersection of CC' and BB' is the circumscribed circle of $\triangle ABC$.
24. If a $\triangle ABC$ remains similar to itself while it turns in its plane about the fixed vertex A and the vertex B describes the circumference of a circle, find the locus of C .
25. OX , OY are two fixed st. lines and from them equal successive segments are cut off; AC , CE , etc. on OX ; BD , DF , etc. on OY . Show that the middle points of AB , CD , EF , etc. lie on a st. line $\perp$ to the bisector of the $\angle XOY$.
26. AB is the diameter of a given circle, E the centre and C any point on the circumference. Produce BC to D making $CD = BC$. Find the locus of the point of intersection of AC and ED .
27. A rectangle inscribed in a given $\triangle ABC$ has one of its sides on BC . Show that the locus of the point of intersection of its diagonals is the line joining the middle point of BC to the middle point of the $\perp$ from A to BC .
28. Any secant ABD is drawn from a given point A to cut a given circle at B and D . Through A , B and A , D respectively two circles are drawn to touch the given circle; find the locus of their second point of intersection.
29. Any chord BAC is drawn through a fixed point A within a circle. On BC as hypotenuse a rt. $\angle$ $\triangle BPC$ is described such that A is the projection of P on BC . Find the locus of P .
30. Any circle is drawn through the vertex of a given $\angle$. Find the loci of the ends of that diameter which is $\parallel$ to the line joining the points where the circle cuts the arms of the $\angle$.