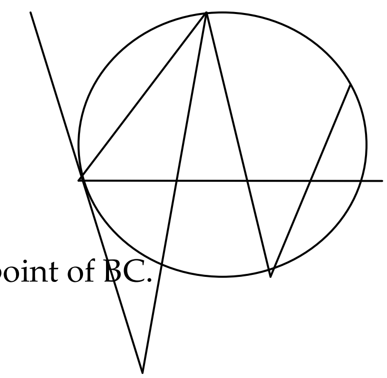
Mathematics
CLASS X

TNo: 23	Nq: 14	MM: 60	Ta: 1.00hr	Dt. 12.02.06
Tc: Geometry & Co-Ordinate Geometry.				

Section- I (3marks each)

Q1. Find the value of **a** and **b** in the given figure



Q2. Prove that the intercept of a tangent between two parallel tangents to a circle subtends a right angle at the centre.

Q3. In triangle ABC, $\angle B = 90^o$ and D is the mid point of BC. Prove that $AC^2 - AD^2 = 3BD^2$

Q4 In a triangle ABC. $CE \perp AB, BD \perp AC$ Then prove that BPxPD = EPxPC

Section- II (4marks each).

Q5 Construct a quadrilateral ABCD in which AB= 4cm, $\angle B = 60^o$, BC =3.5cm, CD =4.0cm, and AD = 5cm. Construct another quadrilateral similar to ABCD whose sides are 1.5 times of the corresponding sides of ABCD .

Q6 Construct a triangle ABC in which BC =6.5cm, $\angle A = 65^o$ and the foot of the perpendicular AD on BC is 4 cm away from B. Also write steps of construction.

Q7 Determine the ratio in which the point P(b,1) divides the join of A(7,-2) and B(-5,6). Also find the value of b.

Q8 The Coordinates of centroid of a triangle is (1,1) to vertices are A(1,2) and B(2,1) Find the distance of CD if D is mid point of AB and also

Q9 In an equilateral triangle the radius of incircle is 2cm the co-ordinate of incentre is (2,2) find the vertices of triangle.

Q10 Find the coordinates of the point equidistant from the points A(-2,-3), B(-1,0) and C(7,-6).

Section- III (6 marks each)

Q11 Prove that the ratio of the areas of two similar triangles is equal to the ratio of the squares of their corresponding sides. Using the above do the following.

The areas of two similar triangles ABC and PQR are in the ratio of 9:16. If BC =4.5cm, find the length of QR.

Q12 In the given figure, C(O,r) and C′(O′,r) are congruent circles intersecting in A and B. PBQ is a line segment through B and tangent SBT to C(O′,r), Prove that SP=BQ.

Q13 Prove that if a chord is drawn through the point of contact of a tangent to circle, then the angles which this chord make with the given tangent are equal respectively to the angles formed in the corresponding alternate segments.

Use this theorem to prove that the tangent at A to the circumcircle of an isosceles triangle ABC in which AB=AC is parallel to BC.

Q14 If PAB is a secant to a circle, intersecting the circle at A and B and PT is a tangent segment, prove that PAxPB =PT^2.

Using this prove the following AB=AC. A circle through B touches the side AC at D intersects side AB at P. If AD=DC, Prove that AB =4AP