Class – X **Session 2014-15** **Sub:- Mathematics**

Topics:- Trigonometry & Similar Triangles

Q1: If tan A = √2 – 1 , show that sinA cos A = $\frac{\sqrt{2}}{4}$

Q2: Evaluate 1 - $sin^2\ sin^2 30^o cos^2 45^o + 4\ tan^2 30^0 + {}^1/_2\, sin^2 90^0 - 2cos^2 90^o + \frac{1}{24} cos^2 0^o$

Q3: P.T $\frac{cos\,(90-\theta)\,\sec(90-\theta)tan\theta}{cosec\,(90-\theta)\,\sin(90-\theta)\,\cot(90-\theta)} + \frac{\tan(90-\theta)}{cot\theta} = 2$

Q4: $sec^4\theta - sec^2\theta = tan^4\theta + tan^2\theta$

Q5: $\sqrt{sec^2\theta + cosec^2\theta} = tan\theta + cot\theta$

Q6: Through the midpoint m of the side CD of a parallelogram ABCD , the line BM is drawn intersecting AC in L and AD produced in E . Prove that EL = 2BL.

Q7: If two triangles are equiangular , prove that the ratio of the corresponding side is same as the ratio of corresponding altitudes .

Q8: ABC is a right Δ at C . let BC = a , CA = b and AB = c , and let 'P' be the perpendicular from C and AB . Prove that (i) pc = ab (ii) $\frac{1}{p^2} = \frac{1}{a^2} + \frac{1}{b^2}$

Q9: In an equilateral Δ with side 'a' prove that a) Altitude = $\frac{a\sqrt{3}}{2}$ b) Area = $\frac{\sqrt{3}}{4}\ a^2$

Q10: A man goes 15m due west and 8m due north . How far is he from the starting point .