

Delhi Public School, Jammu**Class – X****Session 2014-15****Sub:- Mathematics****Topics:- Trigonometry & Similar Triangles**

Q1: If $\tan A = \sqrt{2} - 1$, show that $\sin A \cos A = \frac{\sqrt{2}}{4}$

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

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

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

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

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.