Assignment 1(ICSE Class 10 2017)

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Problem 2 (a) Evaluate without using trigonometric tables,

$\sin^2 28° + \sin^2 62° + \tan^2 38° - \cot^2 52° + \sec^2 30°$

Solution:

(a) $\sin^2 28° + \sin^2 62° + \tan^2 38° - \cot^2 52° + \frac{1}{4}\sec^2 30°$

$= \sin^2 28° + \sin^2(90° - 28°) + tan^2 38° - cot^2(90° - 38°) + \frac{1}{4}\left(\frac{2}{\sqrt{3}}^2\right)$

$= \sin^2 28° + \cos^2 28° + \tan^2 38° - \tan^2 38° + \frac{1}{4}\left(\frac{4}{3}\right)$

$= 1 + \frac{1}{3} = \frac{3+1}{3} = \frac{4}{3} = 1\frac{1}{3}$