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)

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

$$(1)$$

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

$$(2)$$

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

$$(3)$$

$$x = 1 + \frac{4}{3} = \frac{3+4}{3} = \frac{7}{3} = 2\frac{1}{3} \qquad (4)$$

$$\therefore x = \frac{7}{3} \qquad (5)$$

$$(6)$$