Assignment1

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outline

Question

Problem 2 (a)
Evaluate without using trigonometric tables,
$\sin^2 28^\circ + \sin^2 62^\circ + \tan^2 38^\circ - \cot^2 52^\circ + \sec^2 30^\circ$

Solution

$$Let x = \sin^2 28° + \sin^2 62° + \tan^2 38° - \cot^2 52° + \sec^2 30° \tag{1}$$

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

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

$$x = 1 + \frac{4}{3} = \frac{3+4}{3} = \frac{7}{3} = 2\frac{1}{3} \tag{4}$$

$$\therefore x = \frac{7}{3} \tag{5}$$