

Assignment 2 (ICSE Class 12 2018)

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Problem 1 (1. iii). *Solve:* $3 \tan^{-1} x + \cot^{-1} x = \pi$.

Solution: The given inverse trigonometric equation is

$$3 \tan^{-1} x + \cot^{-1} x = \pi \quad (1)$$

Also, we know the inverse trigonometric identity

$$\tan^{-1} x + \cot^{-1} x = \frac{\pi}{2} \quad (2)$$

Using (2) in (1), we get $2 \tan^{-1} x = \frac{\pi}{2}$ or $\tan^{-1} x = \frac{\pi}{4}$, hence $x = 1$ is the only solution to the equation (This is verified in the C source file `./codes/1_3.c`).