Q.1) If two angles of a triangle are $\tan^{-1}(2)$ & $\tan^{-1}(3)$, then find the third angle.

Soln- Two angles are $\tan^{-1}(2)$ & $\tan^{-1}3$.

Sum of all angles of a triangle is π.
So, the third angle will be $\pi - \tan^{-1}(2) - \tan^{-1}(3)$

$$\pi - \tan^{-1}(2) - \tan^{-1}(3) = \pi - (\tan^{-1}(2) + \tan^{-1}(3))$$

$$= \pi - \left[\pi + \tan^{-1}\left(\frac{2+3}{1-2\cdot3}\right)\right] \quad \text{as } (2)(3) > 1$$

$$= -\tan^{-1}\left(\frac{5}{-5}\right)$$

$$= -\tan^{-1}(-1)$$

$$= -\left(-\frac{\pi}{4}\right) = \frac{\pi}{4}.$$

Hence, the third angle of triangle is $\frac{\pi}{4}$.