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Questions:

5 Marks

1. If $sin\left(sin^{-1}\frac{1}{5}+cos^{-1}x\right)=1$, then find the value of x.
2. Prove the following:
   $\cos\left(\sin^{-1}\frac{3}{5}+\cot^{-1}\frac{3}{2}\right)=\frac{6}{5\sqrt{13}}$.
3. Prove that :$tan^{-1}\left(\frac{1}{2}\right)+tan^{-1}\left(\frac{1}{5}\right)+tan^{-1}\left(\frac{1}{8}\right)=\frac{\pi}{4}$
4. Prove that $2\tan^{-1}\frac{1}{2}+\tan^{-1}\frac{1}{7}=\tan^{-1}\frac{31}{17}$.

2 Marks

5. Write the principal value of the following : $\left[tan^{-1}\left(-\sqrt{3}\right)+tan^{-1}(1)\right]$
6. Evaluvate : $sin^{-1}\left[sin\left(\frac{3\pi}{5}\right)\right]$
7. Write the principal value of $tan^{-1}(1)+cos^{-1}\left(-\frac{1}{2}\right)$
8. Write the value of $tan^{-1}\left[2sin\left(2cos^{-1}\left(\frac{\sqrt{3}}{2}\right)\right)\right]$
9. Write the principal value of $tan^{-1}\left(tan\frac{9\pi}{8}\right)$

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