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**ASSIGNMENT**

**Inverse Trigonometry Functions**

1. Evaluate : $\sin(\left(sec^{-1}\frac{17}{15}\right)).$
2. Evaluate: $tan⁡(\frac{1}{2}sin^{-1}\frac{3}{5})$.
3. Evaluate : $\sin(\left(cos^{-1}\frac{3}{5}\right)).$
4. Evaluate: tan-1[tan($\frac{-3π}{4}$)]
5. Solve the equation : $sin^{-1}\left(1-x\right)=\frac{π}{2} + 2sin^{-1}x.$
6. Prove that: $\cos(\left(2tan^{-1}\frac{1}{7}\right))=sin⁡(4tan^{-1}\frac{1}{3})$.
7. Write $cot^{-1}(\sqrt{1+x^{2}}-x)$ in the simplest form.
8. If $cos^{-1}\frac{x}{2}+cos^{-1}\frac{y}{3}=α ,then prove that 9x^{2}-12xy \cos(α+4y^{2}=36sin^{2}α .)$
9. Evaluate: $cos⁡(sin^{-1}\frac{8}{17})$.
10. Solve the equation: $\tan(\left(cos^{-1}x\right))= sin⁡(cot^{-1}\frac{1}{2} )$ .
11. Evaluate: cos[$cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)+\frac{π}{4}$] .
12. Prove that: $cos^{-1}\left(\frac{cosa+cosb}{1+ cosa cosb}\right)=2tan^{-1}(tan\frac{a}{2}tan\frac{b}{2})$.
13. Simplify : $cos^{-1}\left(\frac{3}{5}cosx+\frac{4}{5}sinx\right).$
14. Prove that$\cos(\left[tan^{-1}\left\{\sin(\left(cot^{-1}x\right))\right\}\right])=\sqrt{\frac{1+x^{2}}{2+x^{2}}}$.
15. Solve for x: sin-1 6x + sin-1(6$\sqrt{3} x)$ = $\frac{-π}{2}$ .
16. Prove that tan(2$sin^{-1}\frac{4}{5} + cos^{-1}\frac{12}{13}$) = $\frac{-253}{204}.$
17. Solve the inverse trigonometrical equation : cos(tan-1 x) = sin(cot-1 $\frac{3}{4}$) .
18. If y = $cot^{-1}\left(\sqrt{cosx}\right)-tan^{-1}\left(\sqrt{cosx}\right), prove that siny= tan^{2}\frac{x}{2}$ .
19. Solve$tan^{-1}\left(x-1\right)+tan^{-1}x+tan^{-1}\left(x+1\right)=tan^{-1}3x$.
20. If $cos^{-1}x+cos^{-1}y+cos^{-1}z=π$, prove that x2 + y2 + z2 + 2xyz = 1.