

## Topic :-INVERSE TRIGONOMETRICE FUNCTIONS

- $\tan^{-1}\left(\frac{1}{4}\right) + \tan^{-1}\left(\frac{2}{9}\right) =$   
a)  $\frac{1}{2}\cos^{-1}\left(\frac{3}{5}\right)$       b)  $\frac{1}{2}\sin^{-1}\left(\frac{3}{5}\right)$       c)  $\frac{1}{2}\tan^{-1}\left(\frac{3}{5}\right)$       d)  $\tan^{-1}\left(\frac{1}{2}\right)$
- If  $\sin^{-1}\alpha + \sin^{-1}\beta + \sin^{-1}\gamma = \frac{3\pi}{2}$ , then  $\alpha\beta + \alpha\gamma + \beta\gamma$  is equal to  
a) 1      b) 0      c) 3      d) -3
- If  $A = \tan^{-1}\left(\frac{x\sqrt{3}}{2k-x}\right)$  and  $B = \tan^{-1}\left(\frac{2x-k}{k\sqrt{3}}\right)$ , then the value of  $A - B$  is  
a)  $10^\circ$       b)  $45^\circ$       c)  $60^\circ$       d)  $30^\circ$
- If in a  $\Delta ABC$ ,  $\angle A = \tan^{-1}2$  and  $\angle B = \tan^{-1}3$ , then angle  $C$  is equal to  
a)  $\frac{\pi}{2}$       b)  $\frac{\pi}{3}$       c)  $\frac{\pi}{4}$       d) None of these
- If  $(\tan^{-1}x)^2 + (\cot^{-1}x)^2 = \frac{5\pi^2}{8}$ , then  $x$  equals  
a) -1      b) 1      c) 0      d) None of these
- $4 \tan^{-1}\frac{1}{5} - \tan^{-1}\frac{1}{239}$  is equal to  
a)  $\pi$       b)  $\frac{\pi}{2}$       c)  $\frac{\pi}{3}$       d)  $\frac{\pi}{4}$
- If  $\sin^{-1}x - \cos^{-1}x = \frac{\pi}{6}$ , then  $x$  is  
a)  $\frac{1}{2}$       b)  $\frac{\sqrt{3}}{2}$       c)  $-\frac{1}{2}$       d) None of these
- If the mapping  $f(x) = ax + b, a > 0$  maps  $[-1, 1]$  onto  $[0, 2]$  then  $\cot[\cot^{-1}7 + \cot^{-1}8 + \cot^{-1}18]$  is equal to  
a)  $f(-1)$       b)  $f(0)$       c)  $f(1)$       d)  $f(2)$
- The value of  $\sin^{-1}\left(\cos\frac{33\pi}{5}\right)$  is  
a)  $\frac{3\pi}{5}$       b)  $\frac{7\pi}{5}$       c)  $\frac{\pi}{10}$       d)  $-\frac{\pi}{10}$
- For the equation  $\cos^{-1}x + \cos^{-1}2x + \pi = 0$ , then the number of real solutions is

- a) 1                                      b) 2                                      c) 0                                      d)  $\infty$
11. The value of  $\tan \left\{ \frac{1}{2} \cos^{-1} \left( \frac{\sqrt{5}}{3} \right) \right\}$ , is  
a)  $\frac{3 + \sqrt{5}}{2}$                                       b)  $3 + \sqrt{5}$                                       c)  $\frac{1}{2}(3 - \sqrt{5})$                                       d) None of these
12. The value of  $\sin \left[ 2 \cos^{-1} \frac{\sqrt{5}}{3} \right]$  is  
a)  $\frac{\sqrt{5}}{3}$                                       b)  $\frac{2\sqrt{5}}{3}$                                       c)  $\frac{4\sqrt{5}}{9}$                                       d)  $\frac{2\sqrt{5}}{9}$
13. If  $x > -\frac{1}{\sqrt{3}}$ , then  $\tan^{-1} \left( \frac{3x - x^3}{1 - 3x^2} \right)$  equals  
a)  $3 \tan^{-1} x$                                       b)  $-\pi + 3 \tan^{-1} x$                                       c)  $\pi + 3 \tan^{-1} x$                                       d) None of these
14.  $\cos^{-1} \left( \frac{1}{2} \right) + 2 \sin^{-1} \left( \frac{1}{2} \right)$  is equal to  
a)  $\frac{\pi}{6}$                                       b)  $\frac{\pi}{3}$                                       c)  $\frac{2\pi}{3}$                                       d)  $\frac{\pi}{4}$
15. If  $\sin \left( \sin^{-1} \frac{1}{5} + \cos^{-1} x \right) = 1$ , then the value of  $x$  is  
a) -1                                      b)  $\frac{2}{5}$                                       c)  $\frac{1}{3}$                                       d)  $\frac{1}{5}$
16. If  $\cos^{-1} x + \cos^{-1} y + \cos^{-1} z = 3\pi$ , then  $xy + yz + zx$  is equal to  
a) 0                                      b) 1                                      c) 3                                      d) -3
17. If  $0 \leq x < \infty$ , then  $\cos^{-1} \left( \frac{1 - x^2}{1 + x^2} \right)$  equals  
a)  $2 \tan^{-1} x$                                       b)  $-2 \tan^{-1} x$                                       c)  $\pi - 2 \tan^{-1} x$                                       d)  $\pi + 2 \tan^{-1} x$
18. The value of  $\cos [ 2 \tan^{-1} (-7) ]$  is  
a)  $\frac{49}{50}$                                       b)  $-\frac{49}{50}$                                       c)  $\frac{24}{25}$                                       d)  $-\frac{24}{25}$
19. The value of  $\sin \left( 4 \tan^{-1} \frac{1}{3} \right) - \cos \left( 2 \tan^{-1} \frac{1}{7} \right)$  is  
a)  $\frac{3}{7}$                                       b)  $\frac{7}{8}$                                       c)  $\frac{8}{21}$                                       d) None of these
20. If  $\cos^{-1} x + \cos^{-1} y + \cos^{-1} z = 3\pi$ , then  $xy + yz + zx$  is equal to  
a) 0                                      b) 1                                      c) 3                                      d) -3