



# CTQ - 2023

## **CTQ : Concept Through Questions**

Year : 2023

## **Topic :Inverse Trigonometric**



[NIMCET 2008]



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[NIMCET 2009]

10. If  $\tan^{-1} 2x + \tan^{-1} 3x = \frac{\pi}{4}$ , then x is

- (a) 1/6
- (b) 1/3
- (c) 1/2
- (d) 1/4

[Video Solution](#)

[NIMCET 2009]

11. If  $\sin^{-1} x + \cos^{-1}(1 - x) = \sin^{-1}(-x)$ , then x satisfies the equation

- (a)  $2x^2 - x + 2 = 0$
- (b)  $2x^2 - 3x = 0$
- (c)  $2x^2 + x - 1 = 0$
- (d) None of these

[Video Solution](#)

[NIMCET 2009]

12. If  $\theta = \tan^{-1} \frac{1}{1+2} + \tan^{-1} \frac{1}{1+(2)(3)} + \tan^{-1} \frac{1}{1+(3)(4)} + \dots + \tan^{-1} \frac{1}{1+n(n+1)} = \tan^{-1} \theta$ ,

then  $\theta$  is equal to

- (a)  $\frac{n}{n+1}$
- (b)  $\frac{n+1}{n+2}$
- (c)  $\frac{n}{n+2}$
- (d)  $\frac{n-1}{n+2}$

[Video Solution](#)

[NIMCET 2009]

13. If  $\sin^{-1} \frac{2a}{1+a^2} - \cos^{-1} \frac{1-b^2}{1+b^2} = \tan^{-1} \frac{2x}{1-x^2}$  then x is equal to:

- (a) a
- (b) b
- (c)  $\frac{a+b}{1-ab}$
- (d)  $\frac{a-b}{1+ab}$

[Video Solution](#)

[NIMCET 2010]

14. The value of  $\sin^{-1} \frac{1}{\sqrt{2}} + \sin^{-1} \frac{\sqrt{2}-\sqrt{1}}{\sqrt{6}} + \sin^{-1} \frac{\sqrt{3}-\sqrt{2}}{\sqrt{12}} + \dots$  to infinity is equal to

- (a)  $\pi$
- (b)  $\pi/3$
- (c)  $\pi/2$
- (d)  $\pi/4$

[Video Solution](#)

[NIMCET 2015]

15. Find the principal value of  $\cot^{-1}(-\sqrt{3})$

- (a)  $\pi/2$
- (b)  $\pi/6$
- (c)  $7\pi/6$
- (d)  $5\pi/6$

[Video Solution](#)

[NIMCET 2017]

16. The value of A that satisfies the equation  $a \sin A + b \cos A = c$  is equal to

- (a)  $\tan^{-1} \left( \frac{a}{b} \right) \pm \cos^{-1} \left( \frac{c}{\sqrt{a^2+b^2}} \right)$
- (b)  $\tan^{-1} \left( \frac{c}{b} \right) \pm \sin^{-1} \left( \frac{c}{\sqrt{a^2+b^2}} \right)$
- (c)  $\tan^{-1} \left( \frac{a}{b} \right) \pm \sin^{-1} \left( \frac{c}{\sqrt{a^2+b^2}} \right)$
- (d) None of these

[Video Solution](#)

[NIMCET 2017]

17. If  $\sin^{-1} \left( \frac{2a}{1+a^2} \right) + \sin^{-1} \left( \frac{2b}{1+b^2} \right) = 2 \tan^{-1} x$ , then

- (a)  $x = \frac{(a-b)}{(1+ab)}$
- (b)  $x = \frac{ab}{(a-b)}$
- (c)  $x = \frac{(a+b)}{(1-ab)}$
- (d)  $x = \frac{1-ab}{1+ab}$

[Video Solution](#)

[NIMCET 2017, 2010]





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## Answer Key

Ques.	1	2	3	4	5	6	7	8	9	10
Ans.	A	A	A	A	A	D	C	C	C	A
Ques.	11	12	13	14	15	16	17	18	19	20
Ans.	B	C	D	C	D	A	C	C	A	B
Ques.	21	22	23	24	25					
Ans.	A	B	C	B	A					