



MATHS

BOOKS - MODERN PUBLICATION

INVERSE TRIGONOMETRY FUNCTIONS

Exercise

1. Evaluate $\cos^{-1}\left(\frac{1}{2}\right) + 2\sin^{-1}\left(\frac{1}{2}\right)$.



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2. Find the value of $\tan^{-1}\sqrt{3} - \sec^{-1}(-2)$.

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3. Write the value of $\tan\left(2\tan^{-1}\frac{1}{3}\right)$.

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4. Evaluate : $\sin^{-1}\left(\sin\left(3\frac{\pi}{5}\right)\right)$

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5. Fill in the blanks choosing correct answer from the brackets.

The value of $\tan^{-1}\left(2\cos\frac{\pi}{3}\right)$ is

$$\left(1, \frac{\pi}{4}, \frac{\pi}{3}\right)$$



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6. Fill in the blanks choosing correct answer from the brackets.

The principal value of $\sin^{-1}\left(\sin\frac{2\pi}{3}\right)$ is

$$\left(\frac{2\pi}{3}, \frac{\pi}{3}, \frac{4\pi}{3}\right)$$



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7. Fill in the blank choosing correct answer from the

brackets The value of

$$\sin\left(\tan^{-1} x + \frac{\tan^{-1} 1}{x}, x > 0\right) = \dots$$

$$\left(0, 1, \frac{1}{2}\right)$$



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$$8. 2 \sin^{-1}\left(\frac{4}{5}\right) + \sin^{-1}\left(\frac{24}{25}\right) = \dots$$



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$$9. \text{Evaluate : } \tan^{-1} 1 = \left(2 \cos\left(\frac{\pi}{3}\right)\right).$$

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10. If $\sin^{-1}\left(\frac{\pi}{5}\right) + \operatorname{cosec}^{-1}\left(\frac{5}{4}\right) = \frac{5}{2}$.

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11. Find two branches other than the principal value branch of $\tan^{-1}x$.

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12.

Evaluate

:

$$\tan^{-1}\left(\frac{-1}{\sqrt{3}}\right) + \cot^{-1}\left(\frac{1}{\sqrt{3}}\right) + \tan^{-1}\left(\sin\left(-\frac{\pi}{2}\right)\right)$$

.



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13. Evaluate $\sin^{-1}\left(\cos\left(\frac{33\pi}{5}\right)\right)$.



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14. Express the value of the following in simplest form.

$$\tan\left(\frac{\pi}{4} + 2\cot^{-1}3\right)$$



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15. Express the value of the following in simplest form.

$$\sin\left(\cos^{-1}\left(\tan\left(\sec^{-1}(\sqrt{2})\right)\right)\right)$$



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16.

$$\tan\left\{\left(\frac{1}{2}\right)\sin^{-1}\left(\frac{2x}{1+x^2}\right) + \frac{1}{2}\cos^{-1}\left(\frac{1-y^2}{1+y^2}\right)\right\}$$

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17. Solve $\cos(2 \sin^{-1} x) = \frac{1}{9}$.

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