

PART 1 - MATHEMATICS

Topic : Inverse trigonometric functions

SECTION-A : (Maximum Marks : 12)

This section contains **THREE** questions.

Each question has **FOUR** options (A), (B), (C) and (D). **ONLY ONE** of these four options is the correct answer.

For each question, choose the option corresponding to the correct answer.

Answer to each question will be evaluated according to the following marking scheme :

Full Marks : +4 If **ONLY** the correct option is chosen;

Zero Marks : 0 If none of the options is chosen (i.e. the question is unanswered);

Negative Marks : -1 In all other cases.

1. Considering only the principal values of the inverse trigonometric functions, the value of

$$\cot^{-1}(\cot(-11)) + 10\sin\left(2\cos^{-1}\left(\frac{1}{\sqrt{2}}\right)\right) + 10\sin(2\tan^{-1}(2))$$

is

[JEE Advanced 2026 Paper 1]

- (A) $3\pi + 7$ (B) 7 (C) $4\pi + 7$ (D) $3\pi - 5$

Scan or tap for the full solution



2. The total number of real solutions of the equation

$$\theta = \tan^{-1}(2\tan\theta) - \frac{1}{2}\sin^{-1}\left(\frac{6\tan\theta}{9+\tan^2\theta}\right)$$

is

(Here, the inverse trigonometric functions $\sin^{-1}x$ and $\tan^{-1}x$ assume values in $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$

and $\left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$, respectively.)

[JEE Advanced 2025 Paper 2]

- (A) 1 (B) 2 (C) 3 (D) 5

Scan or tap for the full solution



3. Considering only the principal values of the inverse trigonometric functions, the value of

$$\tan\left(\sin^{-1}\left(\frac{3}{5}\right) - 2\cos^{-1}\left(\frac{2}{\sqrt{5}}\right)\right)$$

is

[JEE Advanced 2024 Paper 2]

- (A) $\frac{7}{24}$ (B) $\frac{-7}{24}$ (C) $\frac{-5}{24}$ (D) $\frac{5}{24}$

Scan or tap for the full solution



Space for Rough Work

JEE ADVANCED INVERSE TRIGONOMETRIC
FUNCTIONS — PYQS

Test Pattern : JEE (Advanced)

ANSWER KEY

SECTION-A																													
Ques.	1	2	3																										
Ans.	C	C	B																										