PART 1 - MATHEMATICS

Topic : Inverse trigonometric functions

SECTION–1 : (Maximum Marks : 9)

- 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	: +3	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

PYQSide

TEST SERIES
(Academic Session : 2026-2027)

JEE ADVANCED INVERSE TRIGONOMETRIC FUNCTIONS — PYQS

Test Pattern : **JEE (Advanced)**

ANSWER KEY

SECTION–1																														
Ques.	1	2	3																											
Ans.	**C**	**C**	**B**																											