Mathematics

Daily Practice Paper #1 · JEE Advanced 2026 · Class 12

SolveFlow · Demo Paper

Field	Value
Subject	Mathematics
Total Questions	10
Total Marks	40
Negative Marking	−1 per wrong answer
Time Suggested	30 minutes
Syllabus	Class 12 — Matrices, Derivatives, Integrals, Differential Equations, Vectors, 3D, Probability

CO & Bloom's Level Mapping

Q No.	Topic	CO	Bloom's Level
1	Matrices — Adjoint and Determinant	CO1	L3 — Apply
2	Continuity & Differentiability	CO2	L4 — Analyse
3	Applications of Derivatives — Extrema	CO2	L4 — Analyse
4	Integrals — Definite Integral	CO2	L3 — Apply
5	Differential Equations — Variables Sep.	CO3	L3 — Apply
6	Vectors — Cross Product	CO3	L3 — Apply
7	3D Geometry — Direction Cosines	CO4	L3 — Apply
8	Probability — Without Replacement	CO4	L3 — Apply
9	Relations & Functions — Injectivity	CO1	L4 — Analyse
10	Inverse Trig — Compound Angles	CO1	L3 — Apply

Instructions

- Each question carries **4 marks** for a correct answer.
- -1 **mark** is deducted for each incorrect answer.
- No marks are deducted for unattempted questions.
- Use of calculator is **not** permitted.
- All logarithms are to the natural base e unless specified.

Q1 | *Matrices & Determinants* Marks: 4 | CO/BL: CO1 / L3

If A is a 3×3 matrix with $|A| = 5$, then $|\text{adj}(A)|$ equals:

(A) 5

(B) 25

(C) 125

(D) $\frac{1}{5}$

Q2 | *Continuity & Differentiability* Marks: 4 | CO/BL: CO2 / L4

If $f(x) = |x - 2|$, then at $x = 2$, f is:

(A) Differentiable everywhere

(B) Not continuous at $x = 2$

(C) Continuous but **not** differentiable at $x = 2$

(D) Neither continuous nor differentiable at $x = 2$

Q3 | *Applications of Derivatives — Local Extrema* Marks: 4 | CO/BL: CO2 / L4

The function $f(x) = 2x^3 - 9x^2 + 12x - 4$ has a local **maximum** at:

(A) $x = 1$

(B) $x = 2$

(C) $x = 3$

(D) $x = -1$

Q4 | *Definite Integrals* Marks: 4 | CO/BL: CO2 / L3

The value of $\displaystyle\int_0^{\pi/2} \sin 2x \, dx$ is:

(A) 0

(B) 1

(C) $\frac{\pi}{2}$

(D) 2

Q5 | *Differential Equations — Variable Separable* Marks: 4 | CO/BL: CO3 / L3

The general solution of $\frac{dy}{dx} = \frac{y}{x}$ is:

(A) $y = Cx^2$

(B) $y = Cx$

(C) $y = Ce^x$

(D) $y = \frac{C}{x}$

Q6 | *Vectors — Cross Product Magnitude* Marks: 4 | CO/BL: CO3 / L3

If $\vec{a} = 2\hat{i} + 3\hat{j} - \hat{k}$ and $\vec{b} = \hat{i} - 2\hat{j} + 2\hat{k}$, then $|\vec{a} \times \vec{b}|$ equals:

(A) $\sqrt{195}$

(B) $\sqrt{90}$

(C) $\sqrt{179}$

(D) $\sqrt{150}$

Q7 | *3D Geometry — Direction Cosines* Marks: 4 | CO/BL: CO4 / L3

The angle θ between lines with direction cosines $\left(\frac{1}{\sqrt{3}}, \frac{1}{\sqrt{3}}, \frac{1}{\sqrt{3}}\right)$ and $\left(\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}}, 0\right)$ is:

(A) $90°$

(B) $60°$

(C) $45°$

(D) $\cos^{-1}\left(\frac{2}{\sqrt{6}}\right)$

Q8 | *Probability — Without Replacement* Marks: 4 | CO/BL: CO4 / L3

Two cards are drawn **without replacement** from a standard deck of 52 cards. The probability that **both** are aces is:

(A) $\frac{1}{221}$

(B) $\frac{1}{169}$

(C) $\frac{4}{52}$

(D) $\dfrac{1}{26}$

Q9 | *Relations & Functions* Marks: 4 | CO/BL: CO1 / L4

The function $f : \mathbb{R} \to \mathbb{R}$ defined by $f(x) = x^2$ is:

(A) One-one and onto

(B) One-one but not onto

(C) Onto but not one-one

(D) Neither one-one nor onto

Q10 | *Inverse Trigonometry — Compound Angles* Marks: 4 | CO/BL: CO1 / L3

The value of $\sin\left(\tan^{-1}\dfrac{3}{4} + \tan^{-1}\dfrac{5}{12}\right)$ is:

(A) $\dfrac{33}{65}$

(B) $\dfrac{56}{65}$

(C) $\dfrac{63}{65}$

(D) $\dfrac{16}{65}$