

PART 1 - MATHEMATICS

Topic : Continuity and differentiability

SECTION-B : (Maximum Marks : 4)

- This section contains **ONE** question.
- The answer to each question is a **NON-NEGATIVE INTEGER**.
- For each question, enter the correct integer corresponding to the answer in the place designated to enter the answer.
- Answer to each question will be evaluated according to the following marking scheme :

Full Marks : +4 If ONLY the correct answer is entered;

Zero Marks : 0 In all other cases.

1. For a real number α , let $[\alpha]$ denote the greatest integer less than or equal to α . For a finite set S , let $|S|$ denote the number of elements in the set S .

Consider the functions $f : (-3, 3) \rightarrow (-\infty, \infty)$ and $g : (-3, 3) \rightarrow (-\infty, \infty)$ defined by

$$f(x) = [x^3] \log_e (1 + \sin^2 (\pi(x - [x])))$$

and

$$g(x) = x^3 \sin^2 (\pi \log_e (1 + x - [x])).$$

Let

$$A = \{x \in (-3, 3) : f \text{ is discontinuous at } x\}$$

and

$$B = \{x \in (-3, 3) : g \text{ is discontinuous at } x\}.$$

Then the value of $|A| + 2|B| - |A \cap B|$ is _____.

[JEE Advanced 2026 Paper 2]

Scan or tap for the
full solution

Space for Rough Work

JEE ADVANCED CONTINUITY AND DIFFERENTIABILITY —
CONTINUITY OF A FUNCTION AT A POINT AND ON AN
INTERVAL — PYQS

Test Pattern : JEE (Advanced)

ANSWER KEY

SECTION-B																											
Ques.	1																										
Ans.	56																										