

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

[illegible]