

JEE MAIN SETS — PYQS

Max. Marks: 44

Questions: 11

Section A (MCQ) — 7 questions

Q.1 Let $A = \{x: |x^2 - 10| \leq 6\}$ and $B = \{x: |x - 2| > 1\}$.

Then [JEE Main 2026 (Online) 21st January Evening Shift]

- (1) $A \cup B = (-\infty, 1] \cup (2, \infty)$
 (2) $B - A = (-\infty, -4) \cup (-2, 1) \cup (4, \infty)$
 (3) $A - B = [2, 3]$
 (4) $A \cap B = [-4, -2] \cup [3, 4]$

Scan or tap for the
full solution



Q.2 Let $A = \{(\alpha, \beta) \in \mathbb{R} \times \mathbb{R} : |\alpha - 1| \leq 4 \text{ and } |\beta - 5| \leq 6\}$
and

$$B = \{(\alpha, \beta) \in \mathbb{R} \times \mathbb{R} : 16(\alpha - 2)^2 + 9(\beta - 6)^2 \leq 144\}.$$

Then [JEE Main 2025 (Online) 7th April Evening Shift]

- (1) $A \subset B$
 (2) $B \subset A$
 (3) neither $A \subset B$ nor $B \subset A$
 (4) $A \cup B = \{(x, y) : -4 \leq x \leq 4, -1 \leq y \leq 11\}$

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Q.3 Let $A = \{1, 6, 11, 16, \dots\}$ and
 $B = \{9, 16, 23, 30, \dots\}$ be the sets consisting of the
 first 2025 terms of two arithmetic progressions.
 Then $n(A \cup B)$ is

[JEE Main 2025 (Online) 4th April Morning Shift]

- (1) 3814 (2) 4003 (3) 4027 (4) 3761

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Q.4 Let $A = \{(x, y) \in \mathbb{R} \times \mathbb{R} : |x + y| \geq 3\}$ and

$$B = \{(x, y) \in \mathbb{R} \times \mathbb{R} : |x| + |y| \leq 3\}.$$

If $C = \{(x, y) \in A \cap B : x = 0 \text{ or } y = 0\}$, then

$$\sum_{(x, y) \in C} |x + y| \text{ is :}$$

[JEE Main 2025 (Online) 23rd January Evening Shift]

- (1) 18 (2) 24 (3) 15 (4) 12

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Q.5 Let $A = \{1, 2, 3, \dots, 10\}$ and
 $B = \left\{ \frac{m}{n} : m, n \in A, m < n \text{ and } \gcd(m, n) = 1 \right\}$. Then
 $n(B)$ is equal to :

[JEE Main 2025 (Online) 22nd January Morning Shift]

- (1) 29 (2) 31 (3) 37 (4) 36

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Q.6 Let $A = \{n \in [100, 700] \cap \mathbb{N} : n \text{ is neither a multiple
 of 3 nor a multiple of 4}\}$. Then the number of
 elements in A is

[JEE Main 2024 (Online) 6th April Morning Shift]

- (1) 300 (2) 310 (3) 290 (4) 280

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full solution



Q.7 Let A and B be two finite sets with m and n
 elements respectively. The total number of subsets
 of the set A is 56 more than the total number of
 subsets of B . Then the distance of the point $P(m, n)$
 from the point $Q(-2, -3)$ is :

[JEE Main 2024 (Online) 27th January Evening Shift]

- (1) 8 (2) 10 (3) 4 (4) 6

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Section B (Numerical) — 4 questions

Q.8 Let S be the set of the first 11 natural numbers. Then
 the number of elements in
 $A = \{B \subseteq S : n(B) \geq 2 \text{ and the product of all elements
 of } B \text{ is even}\}$ is _____.

[JEE Main 2026 (Online) 22nd January Evening Shift]

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full solution



- Q.9** In a survey of 220 students of a higher secondary school, it was found that at least 125 and at most 130 students studied Mathematics; at least 85 and at most 95 studied Physics; at least 75 and at most 90 studied Chemistry; 30 studied both Physics and Chemistry; 50 studied both Chemistry and Mathematics; 40 studied both Mathematics and Physics and 10 studied none of these subjects. Let m and n respectively be the least and the most number of students who studied all the three subjects. Then $m + n$ is equal to _____.

[JEE Main 2024 (Online) 4th April Morning Shift]

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full solution



- Q.10** A group of 40 students appeared in an examination of 3 subjects - Mathematics, Physics and Chemistry. It was found that all students passed in at least one of the subjects, 20 students passed in Mathematics, 25 students passed in Physics, 16 students passed in Chemistry, at most 11 students passed in both Mathematics and Physics, at most 15 students passed in both Physics and Chemistry, at most 15 students passed in both Mathematics and Chemistry. The maximum number of students passed in all the three subjects is _____.

[JEE Main 2024 (Online) 30th January Morning Shift]

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full solution



- Q.11** Let the set $C = \{(x, y) \mid x^2 - 2y = 2023, x, y \in \mathbb{N}\}$.

Then $\sum_{(x, y) \in C} (x + y)$ is equal to _____.

[JEE Main 2024 (Online) 29th January Evening Shift]

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full solution



ANSWER KEY

Section A (MCQ) — 7 questions

Ques.	1	2	3	4	5	6	7				
Ans.	2	2	4	4	2	1	2				

Section B (Numerical) — 4 questions

Ques.	8	9	10	11			
Ans.	1979	45	10	46			