

JEE MAIN RELATIONS AND FUNCTIONS — RELATIONS: DOMAIN, CODOMAIN AND RANGE — PYQS

Max. Marks: 16
Questions: 4

Section A (MCQ) — 2 questions

- Q.1** The number of elements in the relation $\mathbf{R} = \{(x, y) : 4x^2 + y^2 < 52, x, y \in \mathbf{Z}\}$ is

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

- (1) 86 (2) 67 (3) 89 (4) 77

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- Q.2** Let $A = \{1, 2, 3, \dots, 100\}$ and R be a relation on A such that $R = \{(a, b) : a = 2b + 1\}$. Let $(a_1, a_2), (a_2, a_3), (a_3, a_4), \dots, (a_k, a_{k+1})$ be a sequence of k elements of R such that the second entry of an ordered pair is equal to the first entry of the next ordered pair. Then the largest integer k , for which such a sequence exists, is equal to :

[JEE Main 2025 (Online) 2nd April Evening Shift]

- (1) 6 (2) 8 (3) 7 (4) 5

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Section B (Numerical) — 2 questions

- Q.3** Let $A = \{1, 4, 7\}$ and $B = \{2, 3, 8\}$. Then the number of elements, in the relation $R = \{(a_1, b_1), (a_2, b_2) \in ((A \times B) \times (A \times B)) : a_1 + b_2 \text{ divides } a_2 + b_1\}$ is _____.

[JEE Main 2026 (Online) 5th April Evening Shift]

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- Q.4** Let $A = \{2, 3, 4, 5, 6\}$. Let R be a relation on the set $A \times A$ given by $(x, y)R(z, w)$ if and only if x divides z and $y \leq w$. Then the number of elements in R is _____.

[JEE Main 2026 (Online) 2nd April Evening Shift]

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ANSWER KEY

Section A (MCQ) — 2 questions

Ques.	1	2									
Ans.	4	4									

Section B (Numerical) — 2 questions

Ques.	3	4						
Ans.	18	120						