Most Repeated Questions in JEE Main Math from Number of relations, equivalence relation / minimum number of elements required to be added in set

Q: The relation R = {(x, y) : x, y ∈ z and x + y is even} is:

Q: . Let A = {1, 2, 3}. The number of relations on A, containing (1, 2) and (2, 3), which are reflexive and transitive but not symmetric, is _____.]

Q: Let R = {(1, 2), (2, 3), (3, 3)} be a relation defined on the set {1, 2, 3, 4}. Then the minimum number of elements, needed to be added in R so the R becomes an equivalence relation, is:

Q: Let X = R × R. Define a relation R on X as: (a1 , b1) R (a2 , b2) ⇔ b1 = b2 .
Statement - I : R is an equivalence relation.
Statement - II : For some (a, b) ∈ X, the set S = {(x, y) ∈ X: (x, y) R (a, b)} represents a line parallel to y = x

Q: Let the relations R1 and R2 on the set X = {1, 2, 3, …, 20} be given by R1 = {(x, y) : 2x - 3y = 2} and R2 = {(x, y) : -5x + 4y = 0}. If M and N be the minimum number of elements required to be added in R1 and R2 , respectively, in order to make the relations symmetric, then M + N equals

Q: Let a relation R on N × N be defined as : (x1 , y1) R(x2 , y2) if and only if x1 ≤ x2 or y1 ≤ y2 . Consider the two statements : (I) R is reflexive but not symmetric. (II) R is transitive then which one of the following is true?

Q: Let P(S) denote the power set of S = {1, 2, 3, …, 10}. Define the relations R1 and R2 on P(S) as AR1 B if (A ∩ BC) ∪ (B ∩ AC) = ϕ and AR2 B if A ∪ BC = B ∪ AC, ∀ A, B ∈ P(S). Then:

Q: Let R be a relation on N × N defined by (a, b) R(c, d) if and only if ad(b - c) = bc(a- d). Then R is

Q: Let R be a relation defined on N as a R b is 2a + 3b s multiple of 5, a, b ∈ N. Then R is

Q: Let a set A = A1 U A2 U ... U Ak , where Ai ∩ Ai = ϕ for i ≠ j; 1 ≤ i, j ≤ k. Define the relation R from A to A by R = {(x, y) : y ∈ Ai if and only if x ∈ Ai , 1 ≤ i ≤ k}. Then, R is:

Q: Let R1 = {(a, b) ∈ N × N : |a - b| ≤ 13} and R2 = {(a, b) ∈ N × N : |a - b| ≠ 13}. Then on N:

Q: Let R1 and R2 be two relations defined on R by a R1 b ⇔ ab ≥ 0 and a R2 b ⇔ a ≥ b. Then