

SETS, RELATIONS, FUNCTIONS pdf

1: Sets, Relations, Functions | JEE Main and Advanced | Video Lecture | Vineet Loomba

Discrete mathematics forms the mathematical foundation of computer and information science. It is also a fascinating subject in itself. Learners will become familiar with a broad range of mathematical objects like sets, functions, relations, graphs, that are omnipresent in computer science. Perhaps.

Suppose that John owns the ball, Mary owns the doll, and Venus owns the car. Nobody owns the gun and Ian owns nothing. Thus the first element of R is the set of objects, the second is the set of persons, and the last element is a set of ordered pairs of the form object, owner. The pair ball, John, denoted by $\text{ball}R\text{John}$ means that the ball is owned by John. Two different relations could have the same graph. But the graphs of the two relations are the same. Some important types of binary relations R between two sets X and Y are listed below. To emphasize that X and Y can be different sets, some authors call these heterogeneous relations. For example, the green relation in the diagram is injective, but the red relation is not, as it relates e . Both relations in the picture are functional. An example for a non-functional relation can be obtained by rotating the red graph clockwise by 90 degrees, i. The green relation is one-to-one, but the red is not. Totality properties only definable if the sets of departure X resp. For example, R is left-total when it is a function or a multivalued function. Note that this property, although sometimes also referred to as total, is different from the definition of total in the next section. Both relations in the picture are left-total. Uniqueness and totality properties: Both the green and the red relation are functions. An injective function or injection: A surjective function or surjection: For the theoretical explanation see Category of relations. Some important properties that a binary relation R over a set X may have are: The equality relation is the only example of a both reflexive and coreflexive relation, and any coreflexive relation is a subset of the identity relation. The previous 4 alternatives are far from being exhaustive; e. The latter two facts also rule out quasi-reflexivity. A relation is asymmetric if and only if it is both anti-symmetric and irreflexive. For example, "is ancestor of" is transitive, while "is parent of" is not. A transitive relation is irreflexive if and only if it is asymmetric. This property is sometimes called "total", which is distinct from the definitions of "total" given in the previous section. Every reflexive relation is serial: This makes sense only if relations on proper classes are allowed. Well-foundedness implies the descending chain condition that is, no infinite chain $R x_3 R x_2 R x_1$ can exist. If the axiom of choice is assumed, both conditions are equivalent. A relation that is reflexive, symmetric, and transitive is called an equivalence relation. A relation that is symmetric, transitive, and serial is also reflexive. A relation that is only symmetric and transitive without necessarily being reflexive is called a partial equivalence relation. A relation that is reflexive, antisymmetric, and transitive is called a partial order. A partial order that is total in the sense of connex is called a total order, simple order, linear order, or a chain. Binary endorelations by property.

2: Set Theory/Relations - Wikibooks, open books for an open world

CHAPTER 2 Sets, Functions, Relations Set Theory Sets. A set is a collection of objects, called elements of the set. A set can be represented by listing its elements between braces.

3: Relations and functions (video) | Khan Academy

Is the relation given by the set of ordered pairs shown below a function? So before we even attempt to do this problem, right here, let's just remind ourselves what a relation is and what type of relations can be functions.

4: JEE Advanced Sets, Relations and Functions - Ezyexamsolution

Relations and functions are two different words having different meaning mathematically. Relation from a set A to a set B is the subset of the Cartesian product of A and B i.e. subset of $A \times B$. Special types of relations are called as functions.

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5: Sets, Relations & Functions “ Revision Notes for IIT JEE & Other Engineering Exams | askITians

A set is a collection of well-defined objects that have no duplicates and Relations mean the relationship between two sets. Set, Relations and Functions is a fundamental unit in JEE Main preparation which serve as a basis for most of the other mathematical chapters.

6: Sets, Relations and Functions - Aptitude Questions & Answers

This is the Aptitude Questions & Answers section on & Sets, Relations and Functions& with explanation for various interview, competitive examination and entrance test. Solved examples with detailed answer description, explanation are given and it would be easy to understand.

7: Math Functions and Relations, what makes them different and how to Find the Domain and Range.

Sets Relations and Functions. If R is a relation from a set A to a set B and S is a relation from B to a set C , then the relation $S \circ R$.

8: Function (mathematics) - Wikipedia

1. Sets: A well defined list or collection of things is called a set and things forming a set are known as objects of that set. Sets are generally expressed by capital letters of English alphabet.

9: Sets, Relations and Functions - JEE Main Study Material and Notes - Entrance

Set theory is a basis of modern mathematics, and notions of set theory are used in all formal descriptions. The notion of set is taken as "undefined", "primitive", or "basic", so.

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