

Combining Like Terms Test Distributive Property Answers

Boolean algebra

associativity, commutativity, and absorption laws, distributivity of $\wedge$ over $\vee$ (or the other distributivity law—one suffices), and the two complement laws

In mathematics and mathematical logic, Boolean algebra is a branch of algebra. It differs from elementary algebra in two ways. First, the values of the variables are the truth values true and false, usually denoted by 1 and 0, whereas in elementary algebra the values of the variables are numbers. Second, Boolean algebra uses logical operators such as conjunction (and) denoted as $\wedge$, disjunction (or) denoted as $\vee$, and negation (not) denoted as $\neg$. Elementary algebra, on the other hand, uses arithmetic operators such as addition, multiplication, subtraction, and division. Boolean algebra is therefore a formal way of describing logical operations in the same way that elementary algebra describes numerical operations.

Boolean algebra was introduced by George Boole in his first book The Mathematical...

Addition

enough to determine the multiplication operation uniquely. The distributive property also provides information about the addition operation; by expanding

Addition (usually signified by the plus symbol, $+$) is one of the four basic operations of arithmetic, the other three being subtraction, multiplication, and division. The addition of two whole numbers results in the total or sum of those values combined. For example, the adjacent image shows two columns of apples, one with three apples and the other with two apples, totaling to five apples. This observation is expressed as " $3 + 2 = 5$ ", which is read as "three plus two equals five".

Besides counting items, addition can also be defined and executed without referring to concrete objects, using abstractions called numbers instead, such as integers, real numbers, and complex numbers. Addition belongs to arithmetic, a branch of mathematics. In algebra, another area of mathematics, addition can also...

Mathematical proof

definition of even integers, the integer properties of closure under addition and multiplication, and the distributive property. Despite its name, mathematical

A mathematical proof is a deductive argument for a mathematical statement, showing that the stated assumptions logically guarantee the conclusion. The argument may use other previously established statements, such as theorems; but every proof can, in principle, be constructed using only certain basic or original assumptions known as axioms, along with the accepted rules of inference. Proofs are examples of exhaustive deductive reasoning that establish logical certainty, to be distinguished from empirical arguments or non-exhaustive inductive reasoning that establish "reasonable expectation". Presenting many cases in which the statement holds is not enough for a proof, which must demonstrate that the statement is true in all possible cases. A proposition that has not been proved but is believed...

Formal semantics (natural language)

statements that qualify as answers to a question. For instance, the sentences "Marco called" and "Don called" qualify as answers to the question "Who called"

Formal semantics is the scientific study of linguistic meaning through formal tools from logic and mathematics. It is an interdisciplinary field, sometimes regarded as a subfield of both linguistics and philosophy of language. Formal semanticists rely on diverse methods to analyze natural language. Many examine the meaning of a sentence by studying the circumstances in which it would be true. They describe these circumstances using abstract mathematical models to represent entities and their features. The principle of compositionality helps them link the meaning of expressions to abstract objects in these models. This principle asserts that the meaning of a compound expression is determined by the meanings of its parts.

Propositional and predicate logic are formal systems used to analyze the...

Unaccusative verb

Geoffrey K. Pullum with inventing the terms "unaccusative" and "unergative". The derivation of the core properties of unaccusative constructions from a

In linguistics, an unaccusative verb is an intransitive verb whose grammatical subject is not a semantic agent. In other words, the subject does not actively initiate, or is not actively responsible for, the action expressed by the verb. An unaccusative verb's subject is semantically similar to the direct object of a transitive verb or to the subject of a verb in the passive voice.

Examples in English are "the tree fell"; "the window broke". In those sentences, the action (falling, breaking) can be considered as something that happened to the subject, rather than being initiated by it. Semantically, the word "tree" in the sentence "the tree fell" plays a similar role to that in a transitive sentence, such as "they cut down the tree", or its passive transformation "the tree was cut down". Unaccusative...

Propositional formula

the Idempotency law $(A \vee A) = A$, we can create more terms. Then by association and distributive laws the variables to disappear can be paired, and then

In propositional logic, a propositional formula is a type of syntactic formula which is well formed. If the values of all variables in a propositional formula are given, it determines a unique truth value. A propositional formula may also be called a propositional expression, a sentence, or a sentential formula.

A propositional formula is constructed from simple propositions, such as "five is greater than three" or propositional variables such as p and q , using connectives or logical operators such as NOT, AND, OR, or IMPLIES; for example:

$(p \text{ AND NOT } q) \text{ IMPLIES } (p \text{ OR } q)$.

In mathematics, a propositional formula is often more briefly referred to as a "proposition", but, more precisely, a propositional formula is not a proposition but a formal expression that denotes a proposition, a formal object...

Elementary algebra

are added together. Brackets can be "multiplied out", using the distributive property. For example, $x(2x + 3)$ can be written

Elementary algebra, also known as high school algebra or college algebra, encompasses the basic concepts of algebra. It is often

contrasted with arithmetic: arithmetic deals with specified numbers, whilst algebra introduces numerical variables (quantities without fixed values).

This use of variables entails use of algebraic notation and an understanding of the general rules of the operations introduced in arithmetic: addition, subtraction, multiplication, division, etc. Unlike abstract algebra, elementary algebra is not concerned with algebraic structures outside the realm of real and complex numbers.

It is typically taught to secondary school students and at introductory college level in the United States, and builds on their understanding of arithmetic. The use of variables to denote quantities...

Monad (functional programming)

monads do qualify as such. However, not all additive monads meet the distributive laws of even a near-semiring. In Haskell, extend is actually defined

In functional programming, monads are a way to structure computations as a sequence of steps, where each step not only produces a value but also some extra information about the computation, such as a potential failure, non-determinism, or side effect. More formally, a monad is a type constructor M equipped with two operations, $\text{return} : A \rightarrow M(A)$ which lifts a value into the monadic context, and $\text{bind} : M(A) \rightarrow (A \rightarrow M(B)) \rightarrow M(B)$ which chains monadic computations. In simpler terms, monads can be thought of as interfaces implemented on type constructors, that allow for functions to abstract over various type constructor variants that implement monad (e.g. Option, List, etc.).

Both the concept of a monad and the term originally come from category theory, where a monad is...

Hierarchical temporal memory

noise and variation in the input which is a result of using a "sparse distributive representation" where only about 2% of the columns are active at any

Hierarchical temporal memory (HTM) is a biologically constrained machine intelligence technology developed by Numenta. Originally described in the 2004 book *On Intelligence* by Jeff Hawkins with Sandra Blakeslee, HTM is primarily used today for

anomaly detection in streaming data. The technology is based on neuroscience and the physiology and interaction of pyramidal neurons in the neocortex of the mammalian (in particular, human) brain.

At the core of HTM are learning algorithms that can store, learn, infer, and recall high-order sequences. Unlike most other machine learning methods, HTM constantly learns (in an unsupervised process) time-based patterns in unlabeled data. HTM is robust to noise, and has high capacity (it can learn multiple patterns simultaneously). When applied to computers...

Business ethics

this moral basis—like the “right” to own slaves—are invalidated. In my judgment, intellectual property rights also fail to pass this test. To enforce copyright

Business ethics (also known as corporate ethics) is a form of applied ethics or professional ethics, that examines ethical principles and moral or ethical problems that can arise in a business environment. It applies to all aspects of business conduct and is relevant to the conduct of individuals and entire organizations. These ethics originate from individuals, organizational statements or the legal system. These norms, values, ethical, and unethical practices are the principles that guide a business.

Business ethics refers to contemporary organizational standards, principles, sets of values and norms that govern the actions and behavior of an individual in the business organization. Business ethics have two dimensions, normative business ethics or descriptive business ethics. As a corporate...

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