Series And Parallel Circuits

Network analysis (electrical circuits) analysis of AC circuits. Network analysis is the process of finding the voltages across, and the currents through, all network components. There are many techniques for calculating these values; however, for the most part, the techniques assume linear components. Except where stated, the methods described in this article are applicable only to linear network analysis. Two circuits are said to be equivalent with respect to a pair of terminals if the voltage across the terminals and current through In electrical engineering and electronics, a network is a collection of interconnected components 46b016d86b

A circuit composed solely of components connected in series is known as a series circuit; likewise... 46b016d86b

Parallel (operator) characterization of series-parallel variable resistor networks" (PDF). 41 The parallel operator. IEEE Transactions on Circuits and Systems I: Fundamental Theory and Applications 46b016d86b

== Science and technology == 46b016d86b A network that contains active electronic components is known as an electronic circuit. Such networks are generally nonlinear and require more complex design and analysis tools. 46b016d86b Series and parallel circuits for electrical circuits and electronic circuits 46b016d86b Parallel (geometry), two lines in the Euclidean plane which never intersect 46b016d86b Consider P and Q, two partially ordered sets. The series composition of P and Q, variously called ordinal sum or linear sum and written P; Q, P * Q, or P □ Q, is the partially ordered set whose elements are the disjoint union... 46b016d86b RLC circuits have many applications as oscillator circuits. Radio receivers and television sets use them for tuning to select a narrow frequency range from ambient radio waves. In this role, the circuit is often referred to as a tuned circuit. An RLC circuit can be used as a band-pass filter, band-stop filter, low-pass filter or high-pass filter. The tuning application, for instance, is an example of band-pass filtering. The RLC filter is described as a second-order circuit, meaning that any voltage or current in the circuit... 46b016d86b

Parallel never intersect Parallel (operator), mathematical operation named after the composition of electrical resistance in parallel circuits Parallel (latitude), Parallel may refer to: 46b016d86b

== Mathematics == 46b016d86b

Series and parallel circuits Whether a two-terminal "object" is an electrical component (e. g. Many circuits can be analyzed as a combination of series and parallel circuits, along with other configurations. as a parallel circuit. The resulting electrical network will have two terminals, and itself can participate in a series or parallel topology. resistors in series) is a matter of perspective. This article will use "component" to refer to a two-terminal "object" that participates in the series/parallel networks. a resistor) or an electrical network (e. In a series circuit Two-terminal components and electrical networks can be connected in series or parallel. g 46b016d86b

Components connected in parallel are connected along multiple paths, and each component has the same voltage across it, equal to the voltage across the network. The current through the network is equal to the sum of the currents through each component. 46b016d86b == Classification == 46b016d86b In this context, the term graph means multigraph. 46b016d86b The two preceding statements are equivalent, except for exchanging the role of voltage and current. 46b016d86b A resistive network is a network containing only resistors and ideal current and voltage sources. Analysis of resistive networks is less complicated than analysis of networks containing capacitors and inductors. If the sources are constant (DC) sources, the result is a DC network. The effective resistance and current distribution properties of arbitrary resistor networks can be modeled in terms of their graph measures and geometrical properties. 46b016d86b The series-parallel partial orders may be characterized as the N-free finite partial orders; they have order dimension at most two. They include weak orders and the reachability relationship in directed trees and directed series–parallel graphs. The comparability graphs of series-parallel partial orders are cographs. 46b016d86b == Definition and terminology == 46b016d86b == Definition == 46b016d86b Series-parallel partial orders have also been called multitrees; however, that name is ambiguous: multitrees also refer to partial orders with no four-element diamond suborder and to other structures formed from multiple trees. 46b016d86b Series–parallel graph in graph theory 46b016d86b Components connected in series are connected along a single "electrical path", and each component has the same electric current through it, equal to the current through the network. The voltage across the network is equal to the sum of the voltages across each component. 46b016d86b

Series-parallel expression series-parallel can apply to different domains: Series and parallel circuits for electrical circuits and electronic circuits Series-parallel partial The expression series-parallel can apply to different domains: 46b016d86b

Series-parallel partial orders have been applied in job shop scheduling, machine learning of event sequencing in time series data, transmission sequencing of multimedia data, and

throughput maximization in dataflow programming. 46b016d86b

Series–parallel graph model series and parallel electric circuits. There are several ways to define series–parallel graphs In graph theory, series–parallel graphs are graphs with two distinguished vertices called terminals, formed recursively by two simple composition operations. In this context, the term graph means multigraph. They can be used to model series and parallel electric circuits 46b016d86b

Circuit electronic components are supported and connected using copper tracks on a non-conductive substrate Series and parallel circuits, two ways in which electrical Circuit may refer to: 46b016d86b

Parallel (operator), mathematical operation named after the composition of electrical resistance in parallel circuits 46b016d86b

Electrical network An electrical circuit is a network consisting of a closed loop, giving a return path for the current. engineers to design circuits without the time, cost and risk of error involved in building circuit prototypes. , voltage sources, current sources, resistances, inductances, capacitances). g. Thus all circuits are networks, but not all networks are circuits (although networks without a closed loop are often referred to as open circuits). , batteries, resistors, inductors, capacitors, switches, transistors) or a model of such an interconnection, consisting of electrical elements (e. More complex circuits can be analyzed numerically An electrical network is an interconnection of electrical components (e. g 46b016d86b

The circuit forms a harmonic oscillator for current, and resonates in a manner similar to an LC circuit. Introducing the resistor increases the decay of these oscillations, which is also known as damping. The resistor also reduces the peak resonant frequency. Some resistance is unavoidable even if a resistor is not specifically included as a component. 46b016d86b Series-parallel partial order, in partial order theory 46b016d86b ‖ 46b016d86b == Definitions == 46b016d86b

Series-parallel partial order order-theoretic mathematics, a series-parallel partial order is a partially ordered set built up from smaller series-parallel partial orders by two simple In order-theoretic mathematics, a series-parallel partial order is a partially ordered set built up from smaller series-parallel partial orders by two simple composition operations 46b016d86b

There are several ways to define series–parallel graphs. 46b016d86b

RLC circuit The name of the circuit is derived from the letters that are used to denote the constituent components of this circuit, where the sequence of the components may vary from RLC. An RLC circuit is an electrical circuit consisting of a resistor (R), an inductor (L), and a capacitor (C), connected in series or in parallel. The name An RLC circuit is an electrical circuit consisting of a resistor (R), an inductor (L), and a capacitor (C), connected in series or in parallel 46b016d86b

Series–parallel networks problem, a combinatorial problem about series–parallel graphs 46b016d86b