Initial voltage of capacitor

What if the initial voltage of a capacitor is 20V?
If the initial voltage of the capacitor at 0s is 20V,would the equation for the voltage of the capacitor at a specific time be; 60 +(20-60)e^(-t/RC)It's unclear to me what the voltage is on the +terminal of your capacitor.

How do you calculate voltage in a capacitor?
Thus,you see in the equationt that V C is V IN - V IN times the exponential function to the power of time and the RC constant. Basically,the more time that elapses the greater the value of the e function and,thus,the more voltage that builds across the capacitor.

How much voltage does a capacitor discharge?
The amount of voltage that a capacitor discharges to is based on the initial voltage across the capacitor,V 0and the same exponential function as present in the charging. A capacitor charges up exponentially and discharges exponentially.

How do you calculate the capacitance of a capacitor?
As the voltage being built up across the capacitor decreases,the current decreases. In the 3rd equation on the table,we calculate the capacitance of a capacitor,according to the simple formula,C= Q/V,where C is the capacitance of the capacitor,Q is the charge across the capacitor,and V is the voltage across the capacitor.

What happens if a capacitor is 0 VC T 0?
Since the initial voltage across the capacitor is zero,(Vc = 0) at t = 0 the capacitor appears to be a short circuitto the external circuit and the maximum current flows through the circuit restricted only by the resistor R. Then by using Kirchhoff's voltage law (KVL),the voltage drops around the circuit are given as:

How many time constants does a capacitor have?
After a period equivalent to 4 time constants, (4T) the capacitor in this RC charging circuit is said to be virtually fully charged as the voltage developed across the capacitors plates has now reached 98% of its maximum value, 0.98Vs. The time period taken for the capacitor to reach this 4T point is known as the Transient Period.

As we are considering an uncharged capacitor (zero initial voltage), the value of constant "K " can be obtained by substituting the initial conditions of the time and voltage. At the instant of closing the switch, the initial condition of time is ...

If the initial voltage of the capacitor at 0s is 20V, would the equation for the voltage of the capacitor at a specific time be; 60 + (20-60)e^(-t/RC) or would it be 80 - 60e^(-t/RC)

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Example 1: The capacitor of [Fig. 2] has an initial voltage of 4 V. a. Find the mathematical expression for the voltage across the capacitor once the switch is closed. b. Find the mathematical expression for the current during the transient period. c. Sketch the waveform for each from initial value to final value. Solution: a.

Charging from 0V to 5V is IDENTICAL to the last letter and digit to charging from 995V to 1000V and from -34V to -29V. In this case, when at t=0 voltage on caps immediately drops, you will have a classic RC circuit with ...

When analyzing resistor-capacitor circuits, always remember that capacitor voltage cannot change instantaneously. If we assume that a capacitor in a circuit is not initially charged, then its voltage must be zero. The instant the circuit is energized, the capacitor voltage must still be zero.

The amount of voltage that a capacitor discharges to is based on the initial voltage across the capacitor, V0 and the same exponential function as present in the charging. A capacitor charges up exponentially and discharges exponentially. So the amount it discharges obviously includes how much voltage it has across it initially times the e ...

Charging from 0V to 5V is IDENTICAL to the last letter and digit to charging from 995V to 1000V and from -34V to -29V. In this case, when at t=0 voltage on caps immediately drops, you will have a classic RC circuit with capacitor (s) charging from V2 to 5V.

This energy in the capacitor is eventually dissipated in the resistor. In summary, the key to working with a source-free RC circuit is finding: The initial voltage across the capacitor. The time constant . With these, we obtain the response ...

The voltage across a capacitor (C) and the current through an inductor (L) depend on the initial conditions of the circuit. When analyzing such circuits, v (0) represents the voltage across the capacitor at the initial time t =0, while v ?(0) ...

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conditions are before there is any history. They must be specified to be able to analyze the circuit going forwards.

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When an increasing DC voltage is applied to a discharged Capacitor, the capacitor draws what is called a "charging current" and "charges up". When this voltage is reduced, the capacitor begins to discharge in the opposite direction. Because capacitors can store electrical energy they act in many ways like small batteries, storing or ...

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