Answer on Question # 69009, Physics - Electric Circuits

Question: How to calculate the current if the capacitance and the voltage are given?

Solution: Suppose, capacitance of the capacitor = C , voltage = V and charge = Q.

Then we know, Charge (Q) = Capacitance (C) x Voltage (V).

The current (I) flowing into the capacitor is the rate of change of the charge across the capacitor plates, $I = \frac{dQ}{dt} = C\frac{dV}{dt}$.

where, dt = change of time. & capacitance value (C) is constant.

Answer: The current-voltage relationship of a capacitor is $I = C\frac{dV}{dt}$.