***Application of the Integral (Simple)***

***Problem Statement (Charge and Current):*** The electric current (measured in milliamps) that flows in a computer circuit can be expressed as a function of time

.

What total charge passes a point in the circuit in 50 milliseconds?

***Solution***: Charge (q) is the integral of current. Therefore, we can express the charge as



At *t* = 0, *q* = 0. Therefore, we can determine the constant

*c* = 0.

So, 



So 15 microcoulombs of charge pass through a point in the circuit.