**Given Function for electric charge over time,** Q(t)=(1− /a)

To find the inverse t(Q), we need to solve for t in terms of Q,

**Thus**, = 1 -

**Taking natural logarithm (ln)** of both sides:

ln(=ln(​)

= ln(​)

t = -a.ln(​)

Thus, the inverse function is:

t = -a.ln(​)

**Meaning of the Inverse Function**

The inverse function t(Q) tells us the time t it takes to reach a specific charge Q on the capacitor. For example, if we know the amount of charge and want to calculate how much time it took to accumulate that charge, we would use this inverse function.