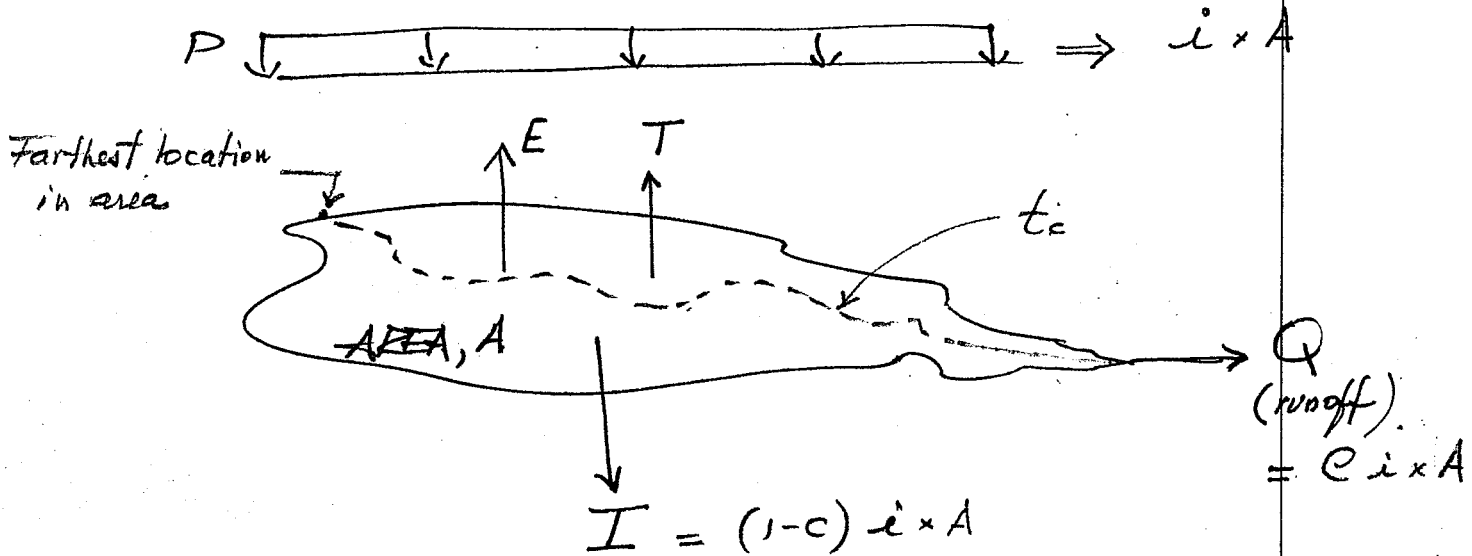


Rational Method Concept

Based on "Conservation of Mass Principle"



\therefore At S.S. over a $t \gg t_{\text{concentration}}$ (or t_c)

$$\frac{\Delta S}{\Delta t} = \sum \text{Inflows} - \sum \text{Outflow} = 0$$

$$\sum \text{Inflows} = \sum \text{Outflows}$$

$$P = Q + \overset{\text{nil}}{E} + \overset{\text{nil}}{T} + I \quad \text{for flows } \left(\frac{L^3}{T}\right)$$

$$P = Q + I$$

$$i \times A = \underbrace{c i A}_{Q} + \underbrace{(1-c) i A}_{I} = i \times A$$

$$i \times A \times t_c = c i A t_c + (1-c) i A t_c \quad \text{for volumes}$$