**DERIVATION OF THE INTEGRAL FROM THE SUMMATION**

Here we will provide a formal proof for

**≅ =tmax**

We know that,

tmax = = t (1) + t (2) + t (3) +……+ t (b) (1.a)

From the Riemann Sum,

n =

Now for all integrals,

= (1.b)

Let t(n) be monotonically increasing,

n =

Expanding equation (1.b) on the RHS, & comparing with (1.a) ,

= =ht(1)+ht(1+h)+ ht(1+2h)+ ht(1+3h)…. +ht(1+nh)

We get, approximating, h=1

n = = )

∵ b>>1 , b-1≈ b , ∴n=b

= t (1) + t (2) + t (3) +……+ t (b) = = tmax

Alternatively,

= = t(1) + t(2) + t(3) + ……… + t(b)=