

## Properties of logarithmic Function:

(i)  $y = \log_b x$  is defined for  $x > 0$ ,  $b > 0$ ,  $b \neq 1$ .

(ii) if  $\log_b a = c$  then  $a = b^c$

(iii)  $\log_b 1 = 0$

(iv)  $\log_b b = 1$

(v)  $\log_b a = 1/\log_a b$

(vi)  $\log_b xy = \log_b x + \log_b y$

(vii)  $\log_b \frac{X}{Y} = \log_b x - \log_b y$

(viii)  $\log_b x^m = m \log_b x$

(ix)  $\log_{b^n} x = 1/n \log_b x$

(x)  $\log_b b^x = x$

(xi)  $(b)^{\log_b x} = x$