## **Exponential and Logarithmic Functions Part 1**

## **6 FURTHER APPLICATIONS OF LOGARITHMS**

a. What will be the value of the following series:

$$2\log x + 2\log x^2 + 2\log x^3 + \dots + 2\log x^n$$

b. If n = m! where m is integer > 2. Find the value of this series.

$$\frac{1}{\log_2 n} + \frac{1}{\log_3 n} + \frac{1}{\log_4 n} + ... + \frac{1}{\log_m n}$$

- c. Given that  $\log_{10} x = m + n$  and  $\log_{10} y = m n$ . Find the value of  $\log_{10}(\frac{10x}{y^2})$  in terms in "m" and "n".
- d. Solve  $\log_4(2^x + 48) + 1 = x$
- e. Solve

$$49^{\log_7(x-1)} - 5^{\log_5(3x)} + 10^{\log_{10} 5} = 0$$