Work sheet, Exponent, logarithm (Tipu sir)

Class 1X

1) $A = 4^{2p+1}$, $B = \dfrac{5^{m+1}}{(5^m)^{m-1}}$ $C = \dfrac{25^{m+1}}{(5^{m-1})^{m+1}}$, $D = 3^x + 3^{1-x}$

a) If A=128, find the value of P

b) Prove that $(B \div C) = \dfrac{1}{25}$

c) Find the value of X when D= 4

2) $\log 3 + \log 9 + \log 27 + \ldots\ldots\ldots\ldots$

a) What kind of series it is?

b) Find the 5th and 10th term of the series.

c) Determine the sum of first 12 terms

3) L, M ,N are algebraic expression, where $L = \dfrac{x^a}{x^b}$ $M = \dfrac{x^b}{x^c}$ $N = \dfrac{x^c}{x^a}$

a) If L= 1, then show that a=b

b) Prove that $\sqrt[ab]{L} \times \sqrt[bc]{M} \times \sqrt[ca]{N} = 1$

c) Show that, $\log_k L^{a+b} + \log_k M^{b+c} + \log_k N^{c+a} = 0$

4) $X = (a^{-1}+b^{-1})^{-1}$ and $Y = \dfrac{2^{n+1}.3^{2n-m}.5^{m+n}.6^m}{6^n.10^{m+2}.15^n}$ S

a) Now simplify X

b) Find the value of Y

c) Show that, $= \left(\dfrac{x^q}{x^r}\right)^{q+r-p} \times \left(\dfrac{x^r}{x^p}\right)^{r+p-q} \times \left(\dfrac{x^p}{x^q}\right)^{p+q-r} = 1$