

LOGARITHM

1. The value of $(0.16)^{\log_{2.5}\left(\frac{1}{3} + \frac{1}{3^2} + \frac{1}{3^3} + \dots \text{to } \infty\right)}$ is equal to _____ .

SOLUTION**1. Official Ans. by NTA (4)**

Sol. $(0.16)^{\log_{2.5}\left(\frac{1}{3} + \frac{1}{3^2} + \dots \text{to } \infty\right)}$

$$= \left(\frac{4}{25}\right)^{\log_{\left(\frac{5}{2}\right)}\left(\frac{1}{2}\right)}$$

$$= \left(\frac{1}{2}\right)^{\log_{\left(\frac{5}{2}\right)}\left(\frac{4}{25}\right)} = \left(\frac{1}{2}\right)^{-2} = 4$$