PROBLEM NO. 17

The logarithm of the quotient (M/N) and the logarithm of the product MN is equal to 1.55630251 and 0.352182518 respectively. Find the value of m.

a.6 b.7 c. 8 **d. 9**

Given: $\log\left(\frac{M}{N}\right)=¿$ 1.55630251

$$\log(MN)=0.352182518$$

Required: value of M

Solution:

$$\log\left(\frac{M}{N}\right)=\log(M)-\log(N)$$

$$1.55630251=\log(M)-\log(N)$$

$$\log(M)=1.55630251+\log(N) \quad \textbf{Eq. 1}$$

$$\log(MN)=\log(M)+\log(N)$$

$$0.352182518=\log(M)+\log(N)$$

$$\log(N)=0.352182518-\log(M) \quad \textbf{Eq.2}$$

Substitute Eq. 2 to Eq. 1

$$\log(M)=1.55630251+0.352182518-\log(M)$$

M = 9.000000095 ≈ 9

Thus, the value of M is approximately equal to 9.

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