

If the m th term of an AP is $\frac{1}{n}$ and the

n th term is $\frac{1}{m}$, then find mn th term of an AP.

SOLUTION :

If A and B are constants, then r th term of AP is

$$t_r = Ar + B$$

Given, $t_m = \frac{1}{n} \Rightarrow Am + B = \frac{1}{n}$... (i)

and $t_n = \frac{1}{m} \Rightarrow An + B = \frac{1}{m}$... (ii)

From Eqs. (i) and (ii), we get $A = \frac{1}{mn}$ and $B = 0$

$$mn \text{ th term} = t_{mn} = Amn + B = \frac{1}{mn} \cdot mn + 0 = 1$$

Hence, mn th term of the given AP is 1.