Sequence and Series - Class XI

Past Year JEE Questions

Questions

Quetion: 01

The sum of an infinite geometric series with positive terms is 3 and the sum of the cubes of its terms is $\frac{27}{19}$.Then the common ratio of this series is :

A. $\frac{4}{9}$

B. $\frac{1}{3}$

C. $\frac{2}{3}$

D. $\frac{2}{9}$

Solutions

Solution: 01

Explanation

$\frac{a}{1-r}=3 \quad \ldots\ldots(1)$

$\frac{a^3}{1-r^3}=\frac{27}{19} \Rightarrow \frac{27(1-r^3)}{1-r^3}=\frac{27}{19}$

$\Rightarrow 6r^2-13r+6=0$

$\Rightarrow r=\frac{2}{3}$

as $|r|<1$