07	1d	Find the limiting sum of the geometric series $\frac{3}{4} + \frac{3}{16} + \frac{3}{64} + \ldots$	2

Using $S_\infty = \frac{a}{1-r}$ with $a = \frac{3}{4}$, $r = \frac{1}{4}$

$$S_\infty = \frac{3}{4} \div (1 - \frac{1}{4})$$
$$= \frac{3}{4} \div \frac{3}{4}$$
$$= 1$$

- These solutions have been provided by *projectmaths* and are not supplied or endorsed by the Board of Studies

Board of Studies: Notes from the Marking Centre

Typical responses determined the common ratio of $\frac{1}{4}$. Incorrect answers resulted from candidates using the wrong formula for the limiting sum, such as $\frac{a}{r-1}$ and $\frac{a}{1+r}$.

Source: http://www.boardofstudies.nsw.edu.au/hsc_exams/