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<b>10</b>	<b>1f</b>	Find the limiting sum of the geometric series $1 - \frac{1}{3} + \frac{1}{9} - \frac{1}{27} + \dots$	<b>2</b>
$a = 1, r = -\frac{1}{3},$ $S_{\infty} = \frac{a}{1-r}$ $= \frac{1}{1 - (-\frac{1}{3})}$ $= \frac{1}{1\frac{1}{3}}$ $= 1 \div 1\frac{1}{3}$ $= \frac{3}{4}$ <p><math>\therefore</math> the limiting sum is <math>\frac{3}{4}</math>.</p>			State Mean: <b>1.58/2</b>

\* 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**

Most candidates used the correct formula to produce the required result.

**Source:** [http://www.boardofstudies.nsw.edu.au/hsc\\_exams/](http://www.boardofstudies.nsw.edu.au/hsc_exams/)