Exercise 6K

1 Explain how you know if a geometric series will be a convergent series.

2 Find S_4, S_7 and S_∞ for each of these series.

   a $144 + 48 + 16 + \cdots$ **b** $500 + 400 + 320 + \cdots$

   c $80 + 8 + 0.8 + \cdots$ **d** $\dfrac{9}{2} + 3 + 2 + \cdots$

3 A geometric series has $S_\infty = \dfrac{27}{2}$ and $S_3 = 13$. Find S_5.

EXAM-STYLE QUESTION

4 For a geometric progression with $u_3 = 24$ and $u_6 = 3$, find S_∞.

5 In a geometric progression, $u_2 = 12$ and $S_\infty = 64$. Find u_1.

EXAM-STYLE QUESTION

6 A geometric series has a common ratio of 0.4 and a sum to infinity of 250. Find the first term.

7 The sum of the first five terms of a geometric series is 3798, and the sum to infinity is 4374. Find the sum of the first seven terms.