

Advanced Higher Maths
SQA 2023 Paper 2
Question 8



The fourth and seventh terms of a geometric sequence are 9 and 243 respectively.

- (a) Find the:
- (i) common ratio 1
 - (ii) first term. 1
- (b) Show that $\frac{S_{2n}}{S_n} = 1 + 3^n$ where S_n represents the sum of the first n terms of this geometric sequence. 2
-

Answers:

- (a) (i) 3
- (ii) $\frac{1}{3}$
- (b) Proof. Use the summation formulae for $2n$ and n . Then divide and simplify, using the difference of two squares to factorise.