A geometric sequence of positive terms has third term 36 and fifth term 16.

(a) Calculate the value of the common ratio. **2**

(b) Calculate the value of the first term. **1**

(c) State why the associated geometric series has a sum to infinity. **1**

(d) Find the value of this sum to infinity. **1**

Answers:

(a) $\dfrac{2}{3}$

(b) 81

(c) $\left|\dfrac{2}{3}\right| < 1$ or equivalent

(d) 243