

9. The first 3 terms of a geometric sequence are

$$3^{4k-5} \quad 9^{7-2k} \quad 3^{2(k-1)}$$

where k is a constant.

(a) Using algebra and making your reasoning clear, prove that $k = \frac{5}{2}$ **(3)**

(b) Hence find the sum to infinity of the geometric sequence. **(3)**