11 The 2nd, 8th and 44th terms of an arithmetic progression form the first three terms of a geometric progression. In the arithmetic progression, the first term is 1 and the common difference is positive.

(a) (i) Show that the common difference of the arithmetic progression is 5. [5]

(ii) Find the sum of the first 20 terms of the arithmetic progression. [2]

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(b) (i) Find the 5th term of the geometric progression. [2]

(ii) Explain whether or not the sum to infinity of this geometric progression exists. [1]