10 **(a)** The first 5 terms of a sequence are given below.

$$4 \qquad -2 \qquad 1 \qquad -0.5 \qquad 0.25$$

(i) Find the 20th term of the sequence. [2]

(ii) Explain why the sum to infinity exists for this sequence and find the value of this sum. [2]

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(b) The tenth term of an arithmetic progression is 15 times the second term. The sum of the first 6 terms of the progression is 87.

(i) Find the common difference of the progression. [4]

(ii) For this progression, the nth term is 6990. Find the value of n. [3]

Question 11 is printed on the next page.