

MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 5 - FEBRUARY 2017
ROUND 6 ALG 2: SEQUENCES AND SERIES

ANSWERS

A) _____

B) _____

C) _____

- A) The following list of Pythagorean Triples forms three vertical sequences. The entries in the left column increase by 2. The gaps between successive entries in the middle column are increasing by 4. In each row, the last two entries differ by 1. Compute the sum of the entries in the row beginning with 15.

3	4	5
5	12	13
7	24	25
9	40	41

- B) For some minimum value of k , $T = \sum_{n=1}^{n=k} 160(2)^{1-n} > 319$. Compute k .

- C) The series $3 - 10 + 17 - 24 + 31 - 38 + \dots$ contains n terms, where n is an odd number. The sum of these n terms is 87. Compute the n^{th} term.