8TH Grade Home Work 6A

Due Dtae: April 06, 2014

21.2.1 Compute the sum of each of the following arithmetic series.

(a) $21 + 28 + 35 + \cdots + 105$

(b) The arithmetic series with first term 7, common difference -3, and 14 terms

(c) $\frac{1}{2} + \frac{5}{6} + \frac{7}{6} + \cdots + \frac{19}{2}$

21.2.2 The sum of a 15-term arithmetic series with first term 7 is -210. What is the common difference?

21.2.3 The sum of the first 5 terms of an arithmetic series is 70. The sum of the first 10 terms of this arithmetic series is 210. What is the first term of the series?

21.2.4 Explain why an arithmetic series with an odd number of terms has its sum equal to the number of terms times the middle term of the series.

21.2.5 The sum of 5 consecutive even integers is 4 less than the sum of the first 8 consecutive odd positive integers. What is the smallest of the even integers? *(Source: AMC 10)*

21.2.6 If the sum of the first $3n$ positive integers is 150 more than the sum of the first n positive integers, then what is the sum of the first $4n$ positive integers?

21.2.7 Suppose that the sequence $a_1, a_2, a_3, \ldots, a_{200}$ is an arithmetic sequence with $a_1 + a_2 + \cdots + a_{100} = 100$ and $a_{101} + a_{102} + \cdots + a_{200} = 200$. What is the value of $a_2 - a_1$? *(Source: AMC 10)*