MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 5 - FEBRUARY 2011
ROUND 6 ALG 2: SEQUENCES AND SERIES

ANSWERS

A) $d =$ _____

B) $t_{10} =$ _____

C) _____

******* NO CALCULATORS ON THIS ROUND *******

A) What is the common difference d in an arithmetic sequence, where the first term is 2, the last term is 29 and the sum of the terms is 155 ?

B) $x, y, -2x$ are the first three terms in an arithmetic progression.
$3x, -3y, x-1$ are the first three terms in a geometric progression.
If $xy \neq 0$, compute the 10^{th} term in the geometric progression.

C) Given a sequence generated by $a_4 = 11$, $a_6 = 64$ and $a_{n+2} = 2a_{n+1} + a_n$ for integers $n \geq 1$.
Compute $a_3 + a_7$.