MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 3 - DECEMBER 2006
ROUND 5 ALG 1: RATIO, PROPORTION OR VARIATION

ANSWERS

A) _____

B) _____

C) _____

A) The ratio of the sum of three consecutive positive odd integers to the sum of the next three larger consecutive even integers is 3 : 4. The smallest even integer is 1 more than the largest odd integer. Determine the sum of these 6 integers.

B) On a certain test, the average grade of those who passed was 84%, while the average grade of those who failed was 54%. If the overall average of the group was 78%, what part of the group passed? Express your answer as a simplified proper fraction.

C) x varies jointly as y and z and inversely as the square of w.
When $(w,\ y,\ z) = (3, 12, 15)$, $x = 100$.
Find wx^2 when $w : x : y : z = 1 : 2 : 3 : 4$.