

**MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 1 - OCTOBER 2010
ROUND 4 ALG 1: FRACTIONS & MIXED NUMBERS**

ANSWERS

A) _____

B) (_____ , _____)

C) _____ mph

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

A) Express the average of $\frac{1}{4}$, $1\frac{1}{5}$ and 1.5 as a simplified ratio of integers.

B) Let $a \oplus b = \frac{a+2b}{2a-b}$. Compute the ordered pair (a, b) for which $a \oplus b = 2$ and $a - b = 2$.

C) During rush hour a Microsoft employee averages only 40 mph on the ride from home to office. After a long day at the office, he returns home late at night over the same route. What average speed (in mph) on his return trip insures that his overall average speed is 55 mph, assuming he does not stop and is not stopped for speeding?