MASSACHUSETTS MATHEMATICS LEAGUE
OCTOBER 2005
ROUND 6 ALG 1: EVALUATIONS

ANSWERS

A)_____

B)_____

C)_____

A) **If we define** $n \oplus m$ **as** $\dfrac{nm}{n+m}$ **, find the exact value of** $\dfrac{1}{2 \oplus 3}$

B) **Find the exact value of** $\dfrac{4x-3y}{2x+y}$ **if** $\dfrac{x}{y} = 0.24\overline{999}$.

Express your answer as a simplified fraction.

C) **In the expression below the letters** $a, b, c, d, e, f,$ **and** g **are to be assigned positive integer values of 1 through 7 in some order. If** M **is the highest possible value of the expression we can obtain and** N **is the minimum, express** $M - N$ **as a simplified improper fraction.**

$$a + \cfrac{b}{c + \cfrac{d}{e + \cfrac{f}{g}}}$$