

MASSACHUSETTS MATHEMATICS LEAGUE  
OCTOBER 2003  
ROUND 4: FRACTIONS & MIXED NUMBERS  
NON-CALCULATOR

ANSWERS

A) \_\_\_\_\_

B) \_\_\_\_\_

C) \_\_\_\_\_

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A) If  $\frac{1}{a(b+1)} + \frac{1}{b(a+1)} = \frac{1}{(a+1)(b+1)}$ , what is the value of  $\frac{1}{a} + \frac{1}{b}$ ?

B) The numerator of a fraction is two less than the denominator. When both the numerator and the denominator are increased by five, the result is  $\frac{4}{3}$  of the original fraction. ~~What~~ Find *all possible original fractions.*

C) If  $\frac{x-3y}{x+2y} = 4\frac{2}{3}$ , what is the value of  $\frac{3x}{4y}$  expressed as a fraction?