

MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 1 - OCTOBER 2009
ROUND 6 ALG 1: EVALUATIONS

******* NO CALCULATORS IN THIS ROUND *******

ANSWERS

A) _____

B) _____

C) _____

A) Compute $2^{-1} - \sqrt{\frac{25}{9} - \frac{64}{25}} + (3 \cdot 5)^{-1}$

B) Given:
$$\begin{cases} a : b = 2 : 3 \\ b : c = 4 : 5 \\ a + b + c = 70 \end{cases}$$

Compute the value of c .

C) Let the binary operation $(*)$ be defined as follows:

$$a * b = \begin{cases} a + ab, & \text{when } b \text{ is a proper fraction} \\ b - ab, & \text{when } b \text{ is an improper fraction} \end{cases}$$

Compute $\left(6 * \frac{2}{3}\right) * \left(\frac{3}{4} * \frac{3}{2}\right)$.