

**MASSACHUSETTS MATHEMATICS LEAGUE  
CONTEST 2 - NOVEMBER 2014  
ROUND 2 ALGEBRA 1: ANYTHING**

**ANSWERS**

A)  $x =$  \_\_\_\_\_

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

C) ( \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ )

A) For some positive constant  $A$ , if  $x = 1$  is a solution of the equation  $|x - A| = 5$ , what is the other solution?

B) Given:  $(2x - A)(3x + B) = 0$  for positive integer constants  $A$  and  $B$ .  
Compute  $A^2 - B^2$ , if  $A + B = 7$  and the sum of the solutions (for  $x$ ) is an integer.

C) Given:  $x \# y = \frac{x}{2} + \frac{y}{3}$  for integers  $x$  and  $y$ .

For some minimum integer  $k > 10$ ,  $\begin{cases} x \# y = k \\ 2x + 3y = k \end{cases}$ . Compute the ordered triple  $(k, x, y)$ .